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ABSTRACT

A comprehensive assessment of the literacy proficiencies of Job Training Partnership Act (JTPA) and Employment Service/Unemployment Insurance (ES/UI) participants was conducted by the Department of Labor. The survey responses of a sample of 2,501 JTPA applicants and 3,277 ES/UI participants were scored, weighted, analyzed, and used to develop a profile of JTPA and ES/UI program participants' prose comprehension, document literacy, and quantitative skills. Findings included the following: (1) 40-50% of JTPA and 40% of ES/UI participants demonstrate literacy skills on the lowest two levels; (2) 15-20% of JTPA and 20-25% ES/UI participants were at the highest two levels; (3) minorities scored below whites on all three scales, and blacks and Hispanics were disproportionately represented at the low and high ends; (4) 30-45% of those with high school diplomas or equivalents were at the lowest two levels; and (5) those at the higher levels avoid long unemployment, earn higher wages, and work in higher level occupations. Approximately half a million JTPA trainees and 7.6 million persons receiving UI or ES services have literacy skills that are insufficient for the current job market. The following recommendations were made: (1) outcome measures that ensure comparability across individuals and time periods, because the high school diploma no longer certifies a baseline of competence; (2) research on the literacy requirements of key job families; (3) increased attention on recruitment in publicly sponsored programs; and (4) broader literacy education within both K-12 and continuing education programs. (The study background and activity questionnaire, Oregon and Mississippi data, and additional JTPA and ES/UI data are appended along with the following reports: "Sampling, Weighting, and Sampling Error Estimation" and "Scaling and Scoring Procedures." The report includes 113 tables, 16 figures, and 66 references.) (MN)

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Final Report to the Department of Labor

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U.S. Department of Labor
Employment & Training Administration

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PROFILING THE LITERACY PROFICIENCIES OF JTPA AND ES/UI POPULATIONS

FINAL REPORT TO THE DEPARTMENT OF LABOR

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The findings of this report underscore how far we have to go to meet the President's and Governors' National Goal for the Year 2000, that "every American will be literate and will possess the knowledge and skills necessary to compete in a global economy. . . ." This comprehensive literacy assessment — dealing with prose, document, and quantitative tasks — provides results that profile a national sample of nearly 20 million participants in the U.S. Department of Labor programs that target people who are unemployed and seeking work or those in search of better jobs. The programs comprise by far the largest component of Labor's Employment and Training Administration activities.

The principal finding from this literacy assessment is that a substantial proportion of these workers and job seekers have minimal literacy skills. Even the 25 to 40 percent who are at the next highest level have skills that are often inadequate for career mobility or advancement. In all, about half a million JTPA trainees and 7.6 million people receiving Unemployment Insurance or services of the Employment Service have literacy skills insufficient for today's jobs.

This literacy survey is the first such comprehensive assessment of these workers and job seekers. It was carried out by Educational Testing Service under contract with the Employment and Training Administration. *Profiling the Literacy Proficiencies of JTPA and ES/UI Populations* and the report prepared for the general public, *Beyond the School Doors*, reflect an effort to measure information-processing skills in three areas key to the day-to-day management of one's life:

- **prose comprehension** skills, such as those a voter might employ to understand editorials on complex civic issues
- **document literacy** skills, such as those a patient might need to decipher charts and tables showing health benefits
- **quantitative** skills, like those a customer might apply in filling out an order form or managing a checking account

The Employment and Training Administration will use this three-dimensional assessment in its efforts to improve the literacy of participants in all its programs. This survey (and new literacy tests now under development) also may heighten Americans' awareness of the critical need to invest in human capital in order to strengthen our economic viability. We also believe the reports will serve to inform related literacy assessment efforts throughout the nation and will buttress the development of human resource policies the nation requires to retain its competitiveness in the year 2000 and beyond.

Roberts T. Jones
Assistant Secretary of Labor
for Employment and
Training Administration

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IK and AJ

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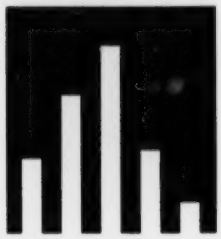
CHAPTER 1

INTRODUCTION



"In light of what many observers believe is a new era in the United States society and economy, policy makers and analysts have become increasingly concerned that the education and training system in this country is not adequate to play its expected role in assuring individual opportunity, in promoting growth and prosperity in the economy as a whole, and in strengthening the country's ability to compete in an increasingly global economy."

(Bailey, 1989)

One consequence of our technologically advancing society, with its emphasis on formal education, is that literacy has become a primary indicator for judging national progress, for granting opportunities for access and advancement, as well as for the allocation of rewards. As a nation, we have put a high premium on literacy skills as they affect both individual well-being and society at large. During the last century, literacy took on even greater importance as we moved from a predominantly agrarian to an industrial society. It was during this transition that our nation required increasing numbers of individuals to possess a core set of skills and knowledge in order to meet changing societal needs. The introduction of compulsory schooling served to meet this requirement, and literacy became the primary tool for learning.

Thomas Jefferson defined three objectives for education:

- to prepare some citizens to be public leaders
- to enable all citizens to exercise the rights of self-government
- to prepare all citizens for the pursuit of happiness

Education that fulfills these objectives will vary according to a country's stage of development. The types and levels of literacy skills necessary for economic participation, citizenship, and individual advancement in 1800 are different from those required in 1900, which, in turn, are different from those skills that will be important in the year 2000. We live in a technologically advancing society where both the number and types of written materials are growing and where increasing numbers of citizens are expected to use this information in new and more complex ways.

Within this context, historians (see for example Kaestle, et. al., 1991) remind us that during the last 200 years, our nation's literacy skills have increased dramatically in response to these new requirements and expanded opportunities for social and economic growth. There have also been periods when demands seemed to surpass levels of attainment. Whenever these periods occurred, we have tended to point to

the failure of our educational system and to warn of serious social and economic consequences. Today, although we are a better educated and more literate society than at any other time in our history, we find ourselves in one of these periods of imbalance. Whereas in the past we relied primarily on our formal education system to correct any imbalance that existed, we now recognize that this school-centered strategy can be only part of the solution.

Rapid technological, economic, and labor market changes demand that we pay increasing attention to the skill deficiencies of those already in the work force. It is estimated that almost 80 percent of the projected work force for the year 2000 are already employed. As a result, it is now widely recognized that developing new and better strategies to increase the literacy levels of both the current as well as the future work force is essential if our nation is to maintain its standard of living and to compete successfully in global markets. Increased literacy levels are equally important for participation in our mass technological society with its formal institutions, complex legal system, and large government programs. Our future social and economic well-being depends on our ability to meet this challenge.

At the historic education summit in Charlottesville, Virginia, President Bush and the governors set out to establish a set of national education goals that would guide America into the twenty-first century. As adopted and reported by members of the National Governors' Association, one of the six goals states:

> *By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.*

While our nation's concern with literacy appropriately encompasses all areas of life, much of the attention in recent years has been focused on workplace literacy skills, particularly the skill levels of those individuals seeking either to enter or reenter the work force. In an effort to improve the understanding of the literacy problems facing these populations, the Employment and Training Administration (ETA) of the U.S. Department of Labor (DOL) commissioned Educational Testing Service (ETS) to develop and conduct a literacy survey of:

- eligible applicants for Job Training Partnership Act (JTPA) programs
- claimants for Unemployment Insurance (UI) benefits and/or job applicants in the Employment Service (ES) system

This report summarizes the results obtained from an individually administered literacy assessment of nearly 6,000 adults representing some 20,000,000 persons participating in these various ETA programs. This chapter provides a brief description

of these programs, an overview of approaches that have been used in measuring literacy proficiency, and a brief discussion of the DOL literacy assessment.

• *The JTPA and ES/UI Programs*

ETA is the training and employment security agency of the Department of Labor. It oversees, among others, the federally mandated training and job service programs of the Job Training Partnership Act, the various job service activities of the U.S. Employment Service, and the income security program of the Unemployment Insurance service. These programs represent major facets of public policy on human resources and comprise by far the largest component of ETA's activities.

The Job Training Partnership Act

The Job Training Partnership Act of 1982 was initiated in October of 1983. Its objective is to bring the jobless into permanent, unsubsidized, and self-sustaining employment by providing training, basic education, job counseling, and placement. The target populations of various program titles include economically disadvantaged adults and youths, dislocated workers, and other groups who face serious employment barriers. Thus, the composition of the JTPA client population is quite varied, including experienced workers as well as new entrants and reentrants to the work force, young and older workers, workers associated with regular and permanent employment, as well as those whose employment tends to be seasonal or irregular. The common thread among these diverse groups is a persistent difficulty in finding jobs. The JTPA program aims to ameliorate this difficulty through training, remedial education, and various types of job services.

The JTPA program is administered in approximately 640 Service Delivery Areas (SDAs) using federal grants provided through the states. Training and employment service programs at the SDA level are planned by Private Industry Councils composed of representatives from business, educational agencies, organized labor, rehabilitation agencies, community-based organizations, and economic development agencies. SDAs, in turn, contract with individual service providers for classroom vocational training, on-the-job training, remedial education, and assistance in finding jobs.

A key feature of JTPA is that the services provided are individualized to suit the needs of each program participant as well as those of local employers. In this way, the local demand for job skills is taken into consideration in designing training programs, and participants' academic and work histories determine specific training curricula. Although the mix of services differs from site to site, JTPA programs typically include three elements — basic educational activities, occupational skills training, and job

placement services. The educational component can include both remedial education and preparation for the General Education Development (GED) examination.

The Employment Service/Unemployment Insurance Programs

The Wagner-Peyser Act of 1933, as amended in 1982, established the jointly financed federal-state system of public employment service. Under this law, states are provided funds to operate labor exchange systems that respond to the specific conditions of each state and meet the demands of its employers and workers. Operated through state employment security agencies, the mission of the U.S. Employment Service includes: assisting job seekers in finding employment commensurate with their skill levels; assisting employers in filling job vacancies with workers who meet the job requirements; providing interstate job-market clearance through exchange of information on labor market conditions; assisting the unemployment insurance system in ensuring that beneficiaries meet the "work test" (whereby the "ability and availability" to work as a condition for unemployment insurance eligibility is demonstrated); and providing job-counseling services to the handicapped and others. To operate this system, some 2,000 local employment service offices are maintained.

The present Unemployment Insurance program was created by the Social Security Act of 1935 to provide temporary income protection for involuntarily unemployed workers. While the specific benefit provisions vary among states, the weekly benefits typically replace about 50 percent of lost wages over a 26-week period for most recipients, with this period extended at times of very high unemployment. Depending on individual state requirements, eligibility for UI benefits is based on a particular amount of money earned or on weeks worked in covered employment during the one-year period prior to filing a claim. All state unemployment insurance laws require that a person be both able and available to work in order to receive unemployment benefits; registration for work at a public employment office is regarded as evidence of such "ability and availability." As a result, a large proportion of ES applicants consists of UI recipients.

• *The Workplace Literacy Gap*

A major issue facing both job candidates and employers has been identified as a "workplace literacy gap" (Bailey, 1989; Barton & Kirsch, 1990; Hudson Institute, 1987). For some, this gap reflects profound changes in the economy and labor market that, in turn, have far-reaching effects on the skill levels needed in the workplace as well as on the education and training system. For others, the gap reflects insufficient skills among those currently in the labor force as well as changes in the demographic makeup of those expected to enter the work force over the next decade; that is, given current subgroup performance differences, the anticipated

increase in minority group members, coupled with increases in economically disadvantaged households, is expected to yield a less well prepared pool of entrants into the work force.

There is general consensus that literacy skills are essential for mastering required job skills, for successful performance of meaningful work, and for keeping up with the changing requirements in the workplace. While few, if any, deny the important role that literacy plays in our society or the advantages afforded those who have acquired and demonstrated high levels of proficiency, identifying and measuring just what particular skills individuals need to function adequately in a pluralistic society have proven to be difficult tasks. During this century, a number of perspectives on defining and measuring literacy have evolved. To provide a better understanding of the perspective taken in the current DOL assessment, a brief review is provided.

• Measuring Literacy Through Large-Scale Assessments

> *If large-scale educational assessments are to function effectively as policy research — that is, to provide empirically-grounded interpretations or understandings to inform policy judgments — a number of key features must be exhibited. Central among these are, first, the capacity to provide data or measures that are commensurable across time periods and population groups, so that trends and group differences can be meaningfully examined; second, the capacity to provide correlational evidence to sustain construct interpretations; and, third, provision for measuring diverse background and program factors to illuminate context effects and treatment or process difference.* (Messick, 1987, p. 158)

In 1986, through its report on the young adult literacy assessment (Kirsch & Jungeblut, 1986), the National Assessment of Educational Progress (NAEP) broke with the traditional stance on literacy and provided information addressing the three major features — comparability, interpretability, and relevance — of effective policy research propounded by Messick (1987). Over the years, literacy had been viewed as a fixed set of skills defined and measured by a single score, with results being applicable in a wide range of contexts. This early conception portrayed literacy as an ability distributed along a single continuum, with higher scores indicating increasing amounts of that ability. From this point of view, a single point on the continuum is selected as a standard that separates the illiterate or "functionally" illiterate from the literate. Critics of this approach have pointed out that the estimated size of the illiteracy problem will vary widely depending on the particular standard or cut point selected.

In contrast to previous literacy surveys, the theoretical approach of the young adult study made possible the gathering of data that yielded evidence for three distinct and important aspects of literacy — prose literacy, document literacy, and quantitative

literacy. Moreover, this new perspective allowed for the development of calibrated scales for each of these aspects of literacy. Subsequent analyses facilitated the identification of particular information-processing requirements associated with performance at various levels along each of the calibrated scales.

The young adult assessment was the latest in a series of national performance surveys of literacy conducted since 1970. Each of the earlier surveys that focused on this area provided information that was used to inform public debate and to help policymakers and educators make the best decisions about programs and curricula for improving the literacy skills of our citizens. On the other hand, these surveys did more than contribute data for use in making informed decisions; they also helped to frame the literacy problem for the nation. This is an important function of policy research since the way one sets up a problem has a strong influence on the procedures adopted for addressing it (Heller, Holtzman, & Messick, 1982). Before turning to the specific design aspects of interest in the young adult literacy assessment, however, it may be useful to set a historical context for literacy investigations to show how NAEP built on earlier work and evolving conceptions of literacy.

Setting a Context

Literacy was broadly perceived as a "right" of all citizens as recently as the 1970s — for example, the Right to Read movement reflected the national priority to ensure that every person reaching adulthood would be able to participate in the full range of literacy activities (Carroll & Chall, 1975). At the federal level more recently, literacy was portrayed not only as a right but also as an obligation (Berlin & Sum, 1988; U.S. Department of Education and U.S. Department of Labor, 1988; Venezky, Kaestle, & Sum, 1987), and the definition of literacy has become increasingly important.

To gauge early literacy rates, historians have had to rely on such crude indicators as counts of signatures taken from legal documents such as wills, marriage licenses, and deeds. It was not until the mid-1800s that the Census Bureau began gathering information on self-reported literacy rates. Stedman and Kaestle (1986) report that after the Civil War, the focus was on tracking crude literacy rates among the emancipated Black Americans and among the growing number of European immigrants. At that point in our history — as the industrial revolution was well under way and as compulsory schooling was being implemented — it made sense to address the literacy problem by answering the question, "What is the number of illiterate people in the United States?" This was because there were large numbers of individuals who could not meet even the most simple criteria of literacy. By the 1920s, however, the Bureau of Census figures showed that self-reported literacy rates for Black citizens had risen from a low of 19 percent to around 77 percent. At that time, the literacy rate for foreign-born White individuals was around 87 percent, while for native-born White individuals it was over 96 percent (Venezky, Kaestle, & Sum, 1987).

At about that same time, two factors set the stage for a shift away from reliance on self-reported statistics toward standardized measures of reading/literacy based on demonstrated performance. First, widespread failure of army recruits on World War I classification tests led to a questioning of the validity of self-reported data such as that collected by the Census. Reading specialists and policymakers soon began to talk about large numbers of people in America who could read in a technical sense but who neither read very well nor read very much (Buswell, 1937; Gray, 1933). Second, there was a growing excitement about the potential of standardized testing for educational purposes. In addition to selecting and sorting individuals, educational measurement was promoted as a means for diagnosing specific learning strengths and deficiencies, for describing particular learner achievements, and for measuring program outcomes (Buros, 1977). These factors combined to focus attention on what will be discussed as a traditional approach to assessing literacy.

The Traditional Approach

The growing concern over the inadequacy of self-reported literacy rates, coupled with the growing optimism for educational measurement, marked the point in our history when we began equating "functional literacy" with the attainment of a particular grade-level score on standardized objective tests of reading achievement. Through the use of such tests, it was possible to estimate percentages of various population groups performing at or above specified reading grade levels. Persons performing at or above a specified level were considered to have adequate reading skills to perform successfully on materials or tasks judged to be of comparable grade-level difficulty. Those persons who failed to attain the specified level were labeled "illiterate" or "functionally illiterate" and were presumed to lack the necessary reading skills to function in our society.

Among other things, this focus on reading grade-level scores served to shift literacy discussions away from concern with learning to read toward discussions of the skills and knowledge that have come to be associated with reading to learn. Over the past 60 years or so of testing, the criterion for judging adequate levels of reading skill has risen steadily from a third-grade to an eighth-grade level (Stedman & Kaestle, 1986). As early as 1975, Carroll and Chall noted that demonstration of a twelfth-grade reading level is necessary to function effectively in a technological society.

The use of grade-level test scores in attempting to understand the literacy problems facing adults in this country carries with it certain assumptions and limitations for practitioners and policymakers alike. Grade-level scores are typically determined from the average performance of an in-school norming sample on multiple-choice questions covering a particular set of school-relevant reading passages. In contrast, research has shown that the literacy materials adults generally encounter in various everyday contexts are different from the types of material

typically associated with school-based standardized tests (Heath, 1980; Jacob, 1982; Kirsch & Guthrie, 1984a; Mikulecky, 1982; Sticht, 1978; Venezky, 1982). As a result, performance on these school-based measures are often not good predictors of performance on literacy tasks associated with nonschool settings. For example, Kirsch and Guthrie (1984b) have shown that the relationship between tasks measuring text-search skills and prose comprehension share only about 10 percent of the variance obtained, while time spent engaged with each of these types of tasks accounts for 32 percent and 45 percent of the variance, respectively. Moreover, Sticht (1982) has reported that marginally literate adults enrolled in a job-related literacy program evidence about twice the gain in performance on job-related reading tasks as on tasks typically found on standardized reading tests.

Another limitation of grade-level scores in the adult literacy context is that they represent the average performance of students functioning within a particular school setting and, thus, reflect much more than simply reading achievement. Interpretation of adult performance on such a scale should be quite different from that of a school-aged child. Just as a fourth-grader scoring at an eleventh-grade level on a test of reading achievement is performing very differently from a tenth- or eleventh-grader scoring at this same level, so an adult scoring at the eighth-grade level is very different from a seventh- or eighth-grader demonstrating this level of achievement.

An additional consideration is that questions are typically selected for inclusion in a standardized test on the basis of item statistics designed to yield scores that maximally differentiate among individuals. Such a procedure can result in reliable and valid tests for purposes of ranking and selection, but, particularly with adults, it has proven less useful for purposes of instructional placement, diagnosis of specific strengths and weaknesses, or for the certification of specific competencies (Cross & Paris, 1987; Haertel, 1985). This limitation in part reflects the fact that analyses are rarely, if ever, undertaken to determine specific factors contributing to task difficulty. Despite this fact, the purposes identified above are the very ones for which standardized reading achievement tests have been employed in literacy programs for adults. Concerns such as these led researchers in the 1970s to move to what is called here the "competency-based approach" to the assessment of adult literacy.

The Competency-Based Approach

During the 1970s, national performance surveys such as those conducted by Louis Harris and Associates (1970, 1971), Educational Testing Service (Murphy, 1973), and the National Assessment of Educational Progress (1972, 1976) attempted to go beyond school-related reading tasks by including a range of materials more like those that adults typically encounter at home, at work, or while traveling or shopping within their community. The most publicized of these national surveys was the Adult Performance Level Project (APL) (Northcutt, 1975). In addition to reading and

writing skills, the APL project included measures of computation, problem solving, and interpersonal skills, reporting results on performance measures as they interacted with content areas such as occupational knowledge, consumer economics, health, and law.

In each of these surveys, nonschool types of materials were sampled and used to develop tasks that were field-tested and then administered to various national samples. By analyzing task responses, researchers estimated the proportion of the adult population that could be expected to perform the tasks successfully and determined the extent to which various background characteristics such as educational level, race/ethnicity, gender, and income level related to the estimates of successful performance. The notion was that information based on materials actually associated with adult contexts would better inform policymakers and educators about the adult literacy problem existing in this country.

While the competency-based approach to assessing adult literacy represents a significant advance over traditional school-based measures of reading achievement, it also shares some of the same assumptions and limitations. Again, no attempt was made to analyze the tasks with respect to the cognitive processes required for successful responses or to determine what factors contributed to task difficulty. Yet the lack of efforts to determine how the interactions between particular types of questions and various materials affect processing demands limits our understanding of the range of knowledge and skills being measured by a given instrument. Without such information, one cannot assume that different assessment instruments used to evaluate program effectiveness, to measure learner competencies, or to develop instructional programs are, in fact, focusing on the same aspects of literacy (Mosenthal & Kirsch, 1989).

In addition, with the exception of the Adult Functional Reading Survey (Murphy, 1973) that reported results solely in terms of the percentages of adults who responded correctly to each task, the national performance surveys employed the ubiquitous additive scoring model, summing across items to yield a single score. Thus, like the traditional approach, these surveys treated literacy as an ability distributed along a single continuum, with scores indicating the various amounts of this trait exhibited by an individual or a group. Because the single point selected to represent the standard of literacy differed from survey to survey, the resultant estimates of "illiteracy" or "functional illiteracy" varied widely, ranging from a low of about 13 percent to a high of about 50 percent (Kirsch & Guthrie, 1978; Fisher, 1978). While debate ensued as to the accuracy of the estimates used to define the extent of the literacy problem and the utility of a single cut point, critics pointed to the varying definitions of literacy employed, the different standards selected, and the differences among the tasks included in the various surveys as explanations for the noncomparability of results. An attempt to address these criticisms formed the basis for what is described next as the "profile approach."

The Profile Approach

The major goal of the NAEP assessment of young adults was to examine not only the extent of the literacy problem but its nature as well. Building on previous work in assessing literacy, the young adult assessment design attempted to extend the concept of literacy, to take into account criticisms of earlier surveys, and to benefit from the rapid advancements in the application of item response theory (IRT) to educational assessment. (See Chapter 2 for a further discussion of IRT theory.) This approach is described in some detail here because the general approach of the DOL literacy assessment encompasses (but goes beyond) that of the young adult assessment. Specific features of the earlier design will be described as they exemplify each of the three critical components important for "transforming large-scale educational assessment into effective policy research" (Messick, 1987, p. 157).

Relevance. Some have questioned whether or not policy research can be expected to have a direct impact on the processes of policy-making and on the judgments of policymakers. It has been argued that the appropriate role for policy research is not to attempt to define policy but rather to establish a body of knowledge from which informed judgments can be made (Lerner & Lasswell, 1951). One means of accomplishing this is to increase our understanding by exploring the complex relationships among sets of variables as they relate to proficiency on the literacy scales.

The 1986 young adult literacy assessment had from its inception emphasized the importance of collecting background information as well as performance measures. This importance was demonstrated by the fact that the background and attitude questionnaire represented 30 of the approximately 90 minutes allotted for data collection. The major areas covered included *family background* (e.g., parental education, parental occupation, and home environment, including language(s) spoken/read, availability of reading materials, and size of household); *respondent characteristics* (e.g., when and where born, race/ethnicity, income level, and occupation/employment status); *educational experiences* (e.g., years of education in and out of this country, types and duration of training — including military and industrial — reasons for not completing high school, type of secondary school curriculum, and participation in and completion of GED); *work and the community* (e.g., perceived adequacy of skills, expectations for obtaining further literacy training, literacy requirements on the job, participation in clubs and organizations and in national, state, or local elections); and *literacy practices* (e.g., topics and content read in newspapers, magazines, books, and brief documents, as well as frequency, time, and context associated with these activities).

These background and attitude variables not only provide rich descriptive information of the populations sampled but are useful in generating group comparisons, such as among individuals reporting varying educational levels, varying employment patterns, varying native-language experiences, and varying literacy

practices. However, while illuminating, these analyses do not capture the complexity of the relationships among a set of variables as they interact with one another. Indeed, the results of simplistic analyses may suggest simplistic solutions to complex problems. For example, the availability of literacy materials in the home was positively related to demonstrated literacy proficiencies; however, simply providing additional literacy materials to each home without stimulating their use could not be expected to result in increased literacy proficiencies.

Therefore, in addition to bivariate comparisons, group comparisons of demonstrated literacy levels were carried out, controlling for numerous demographic, home, educational, and literacy practice variables by means of regression and covariance techniques. The results of the relational analyses suggested, among other things, that the most promising literacy intervention strategies are likely to be those that take into account the intergenerational aspects of poor academic performance — parental education, economic situation, and early home experiences are all likely to affect the individual's system of values and knowledge. These value and knowledge systems can be expected to have cumulative and lasting effects on interests, motivations and aspirations, and ultimately on literacy practices and proficiencies. It should be recognized that the background variables used are proxies for these complex systems and, as such, carry with them the effects of systems that are not measured directly.

In addition to the analyses carried out as part of the initial study, the young adult literacy data base has already provided a rich source for secondary analyses. For example, Venezky, Kaestle, and Sum (1987) were invited to write a monograph reflecting on the implications of the NAEP findings from the perspectives of education, history, and economics. Funds were allocated by the National Science Foundation and the Rockefeller Foundation for studies focusing on Black young adults (Winfield, 1987). Another investigation exploring the interactions of various patterns of literacy practices as they relate to proficiency has been completed at Educational Testing Service (Kirsch, Mosenthal, & Rock, 1988).

The data from the young adult survey, which, in this sense, increase relevance for informed policy-making, are derived substantially from the application of IRT theory. These IRT scaling techniques not only facilitated the relational analyses of results but contributed to assuring comparability of performance across literacy dimensions and across groups and time periods as well — a topic that we turn to next.

Comparability. An item-sampling design was implemented in the 1986 study to ensure as broad a range of content coverage as possible. As a result, different subsets of literacy tasks were administered to different subsets of the young adult sample. Without some defensible means for aggregating across tasks, one is restricted to talking about distributions of performance on individual items or about mean performance across tasks responded to by different samples of individuals. Through the use of IRT scaling, an item or task is characterized by one or more scale parameters

that are directly comparable across tasks on a given scale and across groups of examinees, whether assessed at the same time or different points in time.

Based on statistical and conceptual analyses, NAEP chose to represent the diverse set of some 100 simulations in terms of three categories or families of tasks — prose, document, and quantitative.

- Prose simulation tasks required the reader to demonstrate the knowledge and skills associated with understanding and using information from texts that include editorials, newspaper articles, stories, poems, and the like.
- Document simulation tasks required readers to demonstrate the knowledge and skills associated with locating and using information contained in job applications, payroll forms, bus schedules, maps, tables, indexes, and so forth.
- Quantitative simulation tasks required the reader to perform different arithmetic operations, either alone or sequentially, using information embedded in both prose and document formats. Included here were such tasks as entering cash and check amounts onto a bank deposit slip, balancing a checkbook, completing an order form, and determining the amount of interest from an advertisement for a loan.

Based on the IRT parameters, NAEP estimated proficiency levels on scales constructed to range from 0 to 500 and it was thus possible to describe and compare the performance distributions of various groups of interest — the total population of 21- to 25-year-old White, Black, and Hispanic young adults, as well as groups having different levels of educational attainment. For example, while 57 percent of the total population reached or surpassed the 300 level on the prose scale, only 12 percent of young adults with eight or fewer years of schooling and 25 percent with nine to 12 years of education attained or surpassed this level. For those who reported earning a high school diploma but no certificate beyond that level, nearly all attained the 150 level, approximately two-thirds are estimated to have reached or surpassed the 275 level, while only 3 percent are estimated to have reached the 375 level.

Examining and comparing groups of young adults who have attained various levels of proficiency and relating these levels to background characteristics help to further our understanding of the extent of the literacy problems facing this population. As such, the young adult assessment provides norm-referenced information that goes beyond some of the earlier surveys. In addition to providing such norm-referenced interpretations, IRT scaling provides a means for making criterion-referenced score interpretations. Within each literacy scale, tasks were ordered on the basis of item parameters and it was possible to identify those tasks that were estimated to be at similar levels, as well as those estimated to be at relatively higher or lower levels. For example, on the document scale, several tasks were estimated to be at about the 200 level. These included entering personal information

on a job application, locating a movie in a TV listing, and matching items from a shopping list to a set of store discount coupons. At higher levels, tasks included locating information on a pay stub (261), using an index from an almanac (268), and following directions for traveling from one location to another using a map (287).

Nevertheless, however useful this information is, it was felt that additional information was needed to extend our understanding of what it means to perform at various levels on each of the scales. We turn now to a description of the technique employed to enhance the interpretability of the young adult literacy assessment results.

Interpretability. To enhance the meaning and interpretability of results on the three literacy scales, benchmark tasks were selected along each scale and variables were identified that seemed to be related to the underlying constructs reflecting task complexity. For example, on the document scale, three aspects or process variables were identified: the number of features or categories of information in the question or directive to be matched to information in the document, the degree to which the wording in the question or directive corresponded to that in the document, and the number of distractors or plausible correct answers in the document.

At the simplest level of complexity, the document scale tasks included signing one's name on a replication of a Social Security card, locating the expiration date on a driver's license, and locating the date and time of a meeting from a form. Each of the tasks at this level of difficulty involved matching a single feature or category of information (e.g., one's name) with information in the document (e.g., the printed word "signature" underneath a blank line). Almost all (98 percent) young adults were estimated to be performing at this level of proficiency.

At a somewhat higher level of complexity, the document scale tasks required readers to match information on the basis of two features from documents containing several distractors or plausible correct answers. One such task involved locating a particular intersection on a street map, while another involved locating the gross pay for year-to-date on a pay stub. Approximately 84 percent of young adults were estimated to have reached or to have surpassed this level of literacy proficiency.

Tasks at a third level of difficulty required readers to match information on the basis of increasing numbers of features or categories. In some cases, these matches were literal, that is, the information in the question and the document was the same, while in others the information was stated one way in the question and another way in the source document. Also common at this higher level of complexity was an increase in the number of distractors, or plausible correct answers, contained in the document. Examples of tasks having these characteristics include: looking up the appropriate kind of sandpaper from a chart showing various types of uses and grades of sandpaper as well as particular materials to be sanded; and identifying information contained in a graph providing sources of energy, years of consumption, and percentage of use by energy type. Only 20 percent of young adults were estimated to have attained this or higher levels of proficiency.

Summary

In sum, responses to an extensive background questionnaire enabled analyses relating group characteristics to demonstrated literacy proficiencies, thus increasing the relevance of the findings for both practitioners as well as policymakers and decision makers. The use of IRT methodology provided calibrated scales, thus both facilitating relational analyses and enhancing the comparability of results across groups, ages, and time. In addition, moving from a single comprehensive literacy scale to multiple scales extends our understanding of the construct of literacy by providing one means for describing its multifaceted nature. That is, the implementation of multiple scales makes explicit an organizing framework for capturing in a useful way the diversity of tasks that have previously been reported in terms of a single scale or on the basis of performance on single items (Nafziger, Thompson, Hiscox, & Owen, 1975). Finally, the process of anchoring various levels on each of the literacy scales takes us one step further in our understanding of the constructs being assessed. By illuminating the variables related to performance, we come to better understand the meaning of the proficiency scores reported and the nature of the literacy problem facing America. As characterized in the NAEP study, the literacy problem for much of the young adult population is characterized by difficulty encountered in using literacy skills and strategies at more complex levels, not "illiteracy" or the inability to decode print or comprehend simple textual materials.

The profile approach views literacy not as a single dimension along which a single point or standard can be selected to separate the "literate" from the "illiterate," but rather as a set of complex information-processing skills that go beyond decoding and comprehending school-like prose materials. This approach seems particularly pertinent for assessing literacy proficiencies relevant to the workplace since it focuses on the application of skills in situations that adults need to cope with on a regular basis. Given this background, it is now possible to provide an overview of the literacy assessment conducted for the Department of Labor.

• *The DOL Literacy Assessment*

The preceding discussion compared and contrasted the profile approach to literacy taken by ETS in its 1986 young adult assessment with the traditional and competency-based approaches typical of literacy studies prior to 1980. The presentation of the profile approach highlighted the responsiveness of the assessment design to resolution of issues raised by expert panels serving as advisors to the project and in the research literature. Some of these issues concern:

- recognizing the multifaceted nature of literacy by reporting results on three scales — prose, document, and quantitative — rather than as a single scale

- avoiding what had been the tendency to oversimplify literacy by dividing the population neatly into those who were deemed "literate" and "illiterate"
- developing simulation t[illegible]s that focus on processing printed or written information frequently associated with various adult contexts
- providing for the comparability of results across groups and across time
- relating demonstrated literacy proficiencies to a wide range of background and demographic characteristics

The initial step in launching the DOL survey was to consider the adoption of an operational definition of literacy that would become the basis for setting assessment objectives and a blueprint for developing new simulation tasks. Consensus was reached by an external committee of researchers, practitioners, and policymakers to adopt the definition of literacy used in the 1986 young adult assessment (Kirsch & Jungeblut, 1986):

> **Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential. (p. 3)**

The DOL assessment employed both the original set of literacy tasks used in the young adult assessment as well as a newly developed set of tasks. The original tasks provided a necessary link to the young adult assessment, while the newly developed tasks helped to refine and extend the existing three literacy scales.

Extending the Literacy Scales

The quality and richness of stimulus materials strongly influence the appropriateness and caliber of assessment items that can be developed. There is considerable sentiment within the reading/literacy community that assessments should be built around "real-life" materials, that is, real rather than contrived stimuli that truly reflect the kinds of reading experiences individuals are likely to encounter. The existing young adult assessment item pool provides some 90 tasks that include traditional prose material, such as newspaper editorials, articles, and poetry; documents, such as forms, tables, charts, graphs, and indexes; and printed materials that require the application of arithmetic operations. However, within this pool, there are only about 15 tasks contributing to each of the prose and quantitative scales, while some 63 items are included on the document scale. Thus, there was a need to better represent the range of points established on the three literacy scales.

Recent research at ETS has resulted in a set of procedures (Kirsch & Mosenthal, 1990) that have proven useful in analyses of both the structure and content of all the stimulus materials and of the associated questions and directives for the existing item pool. Mosenthal & Kirsch (1991) have prepared a paper describing a model relating structure and content to theoretical constructs underlying performance on the

document scale. These research results, as well as established expertise in test development, were brought to bear on the item-generation process. In all, about 90 new tasks were used in the DOL survey, bringing the total item pool to some 180 tasks.

No single participant in the DOL survey could be expected to respond to the entire set of simulation tasks, particularly given the 60 minutes allowed for administration of the simulation tasks. It was necessary, therefore, to adopt a procedure by which each individual would respond to a subset of literacy tasks, while at the same time ensuring that the total set of tasks was administered across nationally representative samples of the DOL populations. That procedure is referred to as "BIB spiralling." With this approach, literacy tasks were placed into blocks or sections that were then compiled into booklets in such a way that each block appears once with every other block. For this assessment, then, a total of 13 blocks of tasks were assembled into 26 assessment booklets, each of which contained a unique combination of three blocks. Each participant in the DOL assessment responded to literacy tasks in only one booklet.

Characterizing the Populations

In addition to the simulation tasks, each participant also responded to a 20-minute background questionnaire designed to yield information that would provide an understanding of the factors related to observed levels of literacy proficiency. To enhance the comparability of the DOL data to other large-scale assessments, a number of questions in the background questionnaire replicated those used in other surveys. Other questions were developed to reflect issues of primary concern to DOL.

A detailed discussion of the development of the simulation tasks and the background questionnaire will be found in Chapter 2, along with a discussion of the assessment design and sampling methodology.

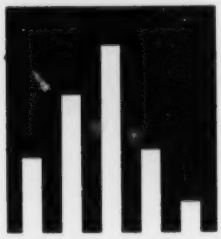
Linking to Other Large-Scale Literacy Assessments

One of the goals of the DOL assessment was to compare its results to those obtained from other large-scale assessments employing the same framework. By the very nature of the design, the most obvious comparison is with the young adult assessment. In addition, comparisons can be made with two representative state samples — Mississippi and Oregon — that used the identical item pool from the DOL assessment. Moreover, in the near future, results on these same established literacy scales will be available for a representative sample of United States adults aged 16 and older, as well as for 11 additional states that are conducting concurrent assessments.

The use of the same established literacy scales by various assessments provides a richer context for reporting and understanding demonstrated literacy proficiencies. For example, in this report, we will compare the performance the of the 21- to 25-year-olds from the young adult assessment to the DOL 21- to 25-year-olds as well as to 26- to 31-year-olds who were aged 21 to 25 in 1985.

CHAPTER 2

INSTRUMENTATION AND METHODOLOGY



Literacy, therefore, is not simply reading, or reading plus writing, but an ability to use print for personal and social ends. It is a functional skill in that it requires the application of various skills in common, everyday situations.

(Venezky, Kaestle, & Sum, 1987)

This chapter describes the instrumentation and methodology for the DOL literacy survey. In doing so, it addresses four major areas:

- the instrumentation
- the assessment design
- the data collection activities
- the scaling of the simulation tasks

• INSTRUMENTATION

The framework for the design and development of the instruments for the DOL literacy survey is based on the 1986 young adult literacy assessment conducted by the National Assessment of Educational Progress (NAEP). In particular, the following features of that assessment were implemented:

- the collection of extensive background information
- the use of open-ended tasks that simulate a variety of literacy activities
- the use of three literacy scales, prose, document, and quantitative, for profiling proficiencies

In order to profile the proficiencies of the DOL populations, the design called for the administration of both the original set of simulation tasks from the 1986 assessment and a set of new tasks. The administration of the original tasks provided the necessary link to the existing scales, and the new tasks were written to represent specific aspects of the scales not well covered by the young adult assessment. To provide further linkage to the NAEP assessment, many of the questions from the young adult background questionnaire were also included in the DOL literacy survey.

The next two sections will discuss the development of the DOL literacy survey instruments.

Development of the Background Questionnaire

As an important component of the survey, the background questionnaire was to provide data that would characterize the two DOL populations and that would enhance understanding of the demonstrated literacy proficiencies. Two goals guided the development of the questionnaire:

- to ensure comparability with the original young adult literacy assessment by including some identical questions
- to ensure the usefulness of the data by addressing additional issues of particular relevance to the DOL

ETS staff and outside consultants who represent broad experience with DOL programs and issues addressed the following:

Background and demographics

- country of birth
- home environment, including languages spoken and availability of reading materials
- service in the Armed Forces
- educational attainment of parents
- marital status
- size of current household
- race/ethnicity
- age

Education

- grade completed in native country
- grade completed in the United States, or if currently a student, educational aspirations
- reasons for not completing high school
- participation in Adult Basic Education
- General Education Development (GED) certificate
- types and duration of training received in addition to public schooling

Labor market indices

- employment experience
- employment status
- occupation
- participation in federal programs

Income

- personal, including hourly and yearly
- household

Activities related to literacy performance

- voting behavior
- interest in government and public affairs
- television viewing
- use of literacy skills on the job
- frequency with which one receives assistance with particular tasks
- newspaper reading practices

A copy of the background questionnaire is provided in Appendix A.

Task Development

Organizing framework for task development. The framework for developing new tasks for the DOL survey was modeled after the approach of the young adult literacy assessment, which used a variety of tasks simulating the diversity of literacy activities that people encounter at work, at home, and in their communities. In order to do this effectively, some of the tasks required the use of a newspaper with actual articles, columns, and advertisements. In addition, some of the tasks required the use of a 1980 world almanac. NAEP profiled the demonstrated literacy skills of young adults on three scales that represent important and distinct aspects of literacy:

- Prose Literacy: understanding and using information from texts that include editorials, newspaper articles, stories, and poems
- Document Literacy: locating and using information contained in documents such as job applications, payroll forms, bus schedules, maps, tables, and indexes
- Quantitative Literacy: applying arithmetic operations, either alone or sequentially, to numbers that are embedded in printed materials, such as in balancing a checkbook, figuring out a tip, or completing an order form

In developing the new tasks for the DOL survey, the goal was to extend and enrich the three literacy scales developed for the young adult literacy assessment. This meant including a diversity of stimulus materials and designing tasks that more fully represented the skills and processes covered by the young adult tasks. The underlying principle behind the development of the new tasks was that demonstrated performance on any given task reflects the interactions among the following:

- the content represented and/or the context from which the stimulus is drawn, e.g., work, home, community
- the structure of the stimulus material, e.g., exposition, narrative, table, graph, map, and advertisement

- the nature of what the individual is asked to do with the material, i.e., the purpose for using the material that guides the strategies needed to complete a task successfully

As demonstrated by research based on performance on the young adult literacy tasks (Kirsch & Mosenthal, 1990), these factors, operating in various combinations, affect the difficulty of a task and, therefore, its statistical characteristics and position relative to other tasks along one of the literacy scales.

Since printed materials are not used in a vacuum but are read in a particular context, materials were included from a cross section of contexts in which adults typically function. Six adult contexts were identified as follows:

- **work**: occupations, finding employment, finance, and being on the job
- **consumer economics**: credit and banking, advertising, making purchases, and maintaining personal possessions
- **community and citizenship**: community resources and becoming or staying informed
- **home and family**: interpersonal relationships, personal finance, housing, and insurance
- **health and safety**: drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies, and staying healthy
- **leisure and recreation**: travel, recreational activities, and restaurants

The stimulus materials used for the tasks reflect a variety of structures or linguistic formats that people encounter in their daily activities and are reproduced in their original format. Materials used for the prose tasks are primarily expository — that is, they describe, define, or inform — since much of the prose that people read is expository in nature. These expository materials include, however, a diversity of linguistic structures, from texts that are highly organized both topically and visually to those that are loosely organized. They also include texts of varying length, from full-page magazine articles to a single column of text from a brochure. For the document tasks, a wide variety of document structures is used, including tables, charts and graphs, forms, and maps, as well as miscellaneous documents such as advertisements and coupons. The stimulus materials for quantitative tasks are mostly documents and encompass different document structures as well; there are no structures that are unique to quantitative tasks. The contexts and materials described above define the axes of the matrix in Table 2.1. The bullets indicate the cells that were represented by tasks included in the survey.

Table 2.1 Matrix of Context by Material

Context	Material: Exposition	Tables	Charts/Graphs	Forms	Maps	Miscellaneous
Work	●	●	●	●		
Consumer Economics	●	●	●	●		●
Community/ Citizenship	●	●	●	●	●	●
Home/Family	●	●				
Health/Safety	●	●				●
Leisure/ Recreation	●	●				●

After the stimulus materials were selected, tasks were developed that simulate the way people would use the materials and, hence, that require different processes for successful task completion. Prose tasks were developed that represent three aspects of prose literacy: locating, integrating, and generating information. Locate tasks require readers to match information given in the question with either literal or synonymous information in the text. To integrate information, readers must pull together two or more pieces of information located at different points in the text. Generate tasks require readers not only to process information in the text, but also to go beyond that information either by drawing on their knowledge about a topic or by making broad text-based inferences. About half the prose tasks require the reader to locate either literal or synonymous information, about 40 percent require the reader to integrate information within a text, and some 10 percent require the reader to generate new information.

The strategies required by document tasks also include locating, integrating, and generating information as well as cycling through information. To locate information, readers must match one or more features of information given in the task with either identical or corresponding information in a document. Cycle tasks require the reader to repeat the matching process by identifying all instances which satisfy a set of conditions stipulated in the question or directive. In completing integrate tasks, readers typically compare and/or contrast information in adjacent parts of a document. As with prose generate tasks, document generate tasks require readers to go beyond information in the document by drawing on their knowledge about the topic or by making inferences. About two-thirds of the document tasks require the reader either to locate or cycle through information, and one-third requires the reader to integrate or generate.

Quantitative tasks require readers to perform arithmetic operations — addition, subtraction, multiplication, or division — either singly or in combination. The representation of information associated with the quantitative tasks includes whole

numbers, decimals, percents, fractions, and time (hours and minutes). About half the quantitative tasks require the reader to perform addition or subtraction, and the other half involve multiplication, division, or some combination of operations. The materials and processes described above define the axes of the matrix in Table 2.2. The bullets indicate the cells that were represented by tasks included in the survey.

Table 2.2 **Matrix of Processes by Materials**

Process	Materials: Exposition	Tables	Charts/Graphs	Forms	Maps	Miscellaneous
Locate	●	●	●	●	●	●
Cycle		●		●	●	●
Integrate	●	●	●	●	●	
Generate	●	●	●	●		
Addition		●		●		●
Subtraction		●	●	●	●	●
Multiplication		●	●	●		●
Division		●		●		
Combination		●				●

For each of the three scales, participants must respond to some tasks by underlining or circling information in the stimulus or by copying information from it. In instances when the stimulus is a form to be completed, participants respond by copying information from the question or directive onto the form. Other tasks require respondents to produce an answer, e.g., to make inferences based on information in the stimulus or to set up and solve a quantitative problem. Thus, the use of a variety of response modes ensures that the simulation tasks adequately reflect real life uses of printed materials.

As part of task development, all stimulus materials and associated tasks were sent through the ETS review process. This process includes a sensitivity review to ensure that the individual tasks and the assessment as a whole do not contain language, symbols, words, or phrases that are generally regarded as sexist, racist, or otherwise potentially offensive, inappropriate, or negative toward any group. Other phases of the ETS process involve reviews by subject area and test development specialists to eliminate ambiguities, to verify answer guides, and to check the stimulus materials and edit tasks for mechanics, style, grammar, and language usage.

Assembling the tasks into blocks and booklets. From a pool of about 160 tasks developed for the survey, 90 tasks were selected and assembled into six new blocks or sections. As was the case for the young adult literacy blocks, each new block was

designed to require approximately 17 minutes of administration time. In assembling the blocks, the following factors were taken into account:

- the inclusion of roughly an equivalent number of tasks from each of the three literacy scales
- the inclusion of a broad range of materials from the identified adult contexts
- the inclusion of a wide variety of materials or structures
- a range of difficulty as estimated by considering the interaction of such variables as the structure of the stimulus material, the nature of the question or directive, and the presence of distractors in the stimulus
- representation of content relating to various racial/ethnic groups
- a variety of response modes

Once the tasks were assembled into blocks, the six new blocks along with the seven blocks and the core from the young adult assessment were then compiled into booklets for administration. The core from the young adult assessment included tasks that were relatively easy and, therefore, served as a transition from the background questionnaire to the simulation tasks; it was designed to take between five to 10 minutes to complete. Each assessment booklet contained the core and three of the 13 blocks of tasks and was intended to take, on average, 60 minutes to complete.

• *The Assessment Design*

The DOL literacy survey was designed to examine both the nature and extent of literacy proficiencies among nationally representative samples of eligible JTPA applicants and ES/UI program participants. This section addresses the techniques employed to ensure the broadest possible coverage of the three aspects of literacy, the sampling plan, and the computation of respondent and population weights.

BIB Spiralling

Because a response time of about 60 minutes was allocated to the measurement of literacy skills, it was necessary to employ some form of item sampling procedure to ensure broad and representative coverage of content. A powerful variant of standard matrix sampling called balanced incomplete block (BIB) spiralling was used. As in standard matrix sampling, in BIB spiralling no respondent is administered all of the tasks in the assessment pool. Unlike standard matrix sampling, however, in which items or tasks are assembled into discrete booklets, BIB spiralling allows for the estimation of relationships among all tasks in the pool through the unique linking of blocks.

With this approach, the 13 blocks of tasks — the six new blocks and the seven young adult blocks — were assembled into 26 assessment booklets, each of which contained a unique combination of blocks. In addition, each booklet contained the section of core tasks from the young adult assessment. The application of the BIB design resulted in the configuration of the booklets, as shown in Table 2.3. In this design, each block appears with the same frequency — in six of the 26 booklets — and each block is paired one time with every other block. Position effects are also controlled for at the block level since each block appears twice in each of the possible positions in the booklets — first, middle, and last.

Table 2.3 **Balanced Incomplete Block Design**

Booklet	Core	Blocks	Booklet	Core	Blocks
1	C	1 2 13	14	C	1 3 8
2	C	2 3 9	15	C	2 4 6
3	C	3 4 7	16	C	3 13 10
4	C	4 13 8	17	C	4 9 11
5	C	13 9 6	18	C	13 7 12
6	C	9 7 10	19	C	9 8 5
7	C	7 8 11	20	C	7 6 1
8	C	8 6 12	21	C	8 10 2
9	C	6 10 5	22	C	6 11 3
10	C	10 11 1	23	C	10 12 4
11	C	11 12 2	24	C	11 5 13
12	C	12 5 3	25	C	12 1 9
13	C	5 1 4	26	C	5 2 7

The spiral component of the design orders the booklets for administration so that each booklet is completed by a random sample of respondents. Table 2.4 shows that the numbers of respondents completing each booklet and each block were relatively similar. As can be seen from the table, this aspect of the design was effective.

One outcome of the BIB spiral design is that every task is taken by a randomly equivalent subsample of respondents. This ensures that reliable estimates of population performance can be estimated for every task. An additional benefit of this methodology is that every pair of tasks is taken by a representative subsample of the total sample so that correlations between pairs of tasks can be estimated.

The Sampling Plan

For the DOL literacy survey, the goal was to assess people from each of two target populations: eligible applicants for JTPA programs and participants in ES/UI programs. For each target population, a multi-stage sampling frame consisting of nine primary strata was constructed. Three selection stages were employed for sampling JTPA sites.

Table 2.4 Numbers of Persons Responding to Each of the 26 Booklets and 13 Blocks

JTPA				ES/UI			
Booklet	Respondents	Block	Respondents	Booklet	Respondents	Block	Respondents
1	102	1	578	1	129	1	762
2	98	2	589	2	127	2	764
3	100	3	581	3	131	3	761
4	92	4	584	4	107	4	750
5	96	5	571	5	129	5	761
6	90	6	576	6	120	6	759
7	95	7	569	7	132	7	751
8	96	8	571	8	130	8	749
9	99	9	580	9	131	9	756
10	95	10	571	10	126	10	757
11	100	11	571	11	131	11	757
12	99	12	584	12	129	12	767
13	96	13	578	13	133	13	737
14	95			14	126		
15	102			15	127		
16	99			16	127		
17	102			17	127		
18	100			18	125		
19	97			19	126		
20	93			20	121		
21	96			21	128		
22	90			22	121		
23	92			23	125		
24	89			24	120		
25	97			25	127		
26	91			26	122		

Stage 1: Selection of two states from each of the nine strata with replacement and with probability proportional to size

Stage 2: Selection of four service delivery areas (SDAs) from each state with replacement and with probability proportional to size

Stage 3: Selection with probability proportional to size of a locale within SDAs that had more than one location where participants enrolled

At stage one, the following 14 states were selected:

Arizona	Missouri
Arkansas	New York*
Florida	North Carolina*
Indiana*	Pennsylvania
Kentucky	Utah
Louisiana	Virginia
Minnesota*	Washington

Because the sampling was based on probability proportional to size, the four asterisked states were selected twice into the sample. At the second stage of selection, a sample of four SDAs was selected from each of the states, including eight SDAs from the four states selected twice. At stage three, for those SDAs with more than one office, a unique office was selected; after this final stage of selection, the sample for JTPA consisted of 72 separate sites where the survey would be conducted.

Two selection stages were employed for the ES/UI local offices.

Stage 1: Selection of two states from each of the nine strata with replacement and with probability proportional to size

Stage 2: Selection of four local offices from each state with probability proportional to size

At stage one, the following 16 states were selected:

Alabama	New York
California*	North Carolina
Florida	Ohio*
Illinois	Oklahoma
Indiana	Tennessee
Kansas	Texas
Maryland	Utah
Massachusetts	West Virginia

The two asterisked states were each selected twice into the sample, again because the sampling was based on probability proportional to size. At the second stage, 72 different offices were selected into the sample, including eight local offices from the two states selected twice.

The process of selecting respondents from each program was established to provide a random sample of the eligible applicants from each site or local office, with a goal of obtaining 56 respondents from each site. An eligible applicant was defined as follows:

ES: any first-time person, i.e., new applicant, enrollee, or drop-in, who entered the office on a selected day

UI: any first-time person, i.e., new claimant, who entered the office on a selected day and brought the necessary documents that enabled the office to classify the client as monetarily eligible

JTPA (IIA and III): any first-time person, i.e., new applicant, enrollee, or drop-in, who entered the office on a selected day and had the necessary documents that enabled the office to classify the client as certified eligible

Each office was randomly assigned two days of the week and specific times of the day (for example, Monday, 10:00 a.m. and Thursday, 2:00 p.m.) on which to select a

respondent and conduct the survey. This meant that the first eligible applicant to arrive at the office after the specified time on the specified day was invited to participate in the survey. To ensure that the appropriate number of respondents would be surveyed over the duration of the assessment, each office was instructed to sample two respondents on one of the sampling days each month at a second randomly assigned time.

After a respondent was selected, trained office staff invited the individual to participate in the survey by briefly describing the assessment and by telling each individual that he or she would receive ten dollars for completing the survey. If possible, the survey was administered immediately upon agreement to participate. A procedure was in place, however, whereby a person could return at his or her convenience to respond to the survey.

Certain information — program, Social Security number, age, gender, race/ethnicity, and education level — was collected for all eligible individuals who entered a local office on the specified sampling days. Thus, some key demographic and background data were available for selected eligible persons who refused to participate in the survey or who agreed to participate but did not keep appointments to take the survey.

Computation and Use of Respondent Weights

As is the case in many large-scale surveys, this assessment had a complex sample design. To estimate the characteristics of the sample populations, constant case weights were calculated for all the participants at a given local office. The case weights properly accounted for the sample design and automatically included adjustment for nonresponse within each office. Details and considerations involving the weights used in the survey are presented in Appendix B.

• *Data Collection*

Data collection activities were performed by staff who worked in the offices selected for the survey. The data collection was conducted from November 1989 through June 1990. Each office administered two to three assessments per week during the assessment period with the goal of completing 56 assessments. The following section of the report describes:

- training of interviewers
- conducting the assessment
- the achieved sample
- scoring
- data entry, editing, and quality control

Training of Interviewers

In preparation for training and data collection, ETS developed an Administration Manual that covered the major aspects of the survey for which the selected offices were to be responsible. This manual became the framework for developing materials for conducting the training of the interviewers. The training was conducted by ETS in collaboration with staff from Westat, Inc. of Rockville, Maryland, which is known for its work in large-scale surveys, interviewer training, and data collection.

In the month before data collection was scheduled to begin, 14 training sessions were conducted in various cities around the country. Most of the training sessions were conducted over two days, except when the group was small enough to make it feasible to conduct the training in one day. Topics covered in the training included an overview of the project, survey materials, sampling procedures, techniques for obtaining respondent cooperation, interviewing techniques, recording conventions, and procedures for administering the background questionnaire and assessment booklets. The training involved both lectures and opportunities for the interviewers to practice administering the survey instruments.

Conducting the Assessment

Once a respondent was selected according to the sampling plan described above, the first part of the assessment involved administering the background questionnaire, which took about 20 minutes to complete. The interviewer read the questionnaire to the respondent and recorded her or his answers in the questionnaire. In order to help the respondent answer some of the questions, the interviewer handed him or her a card that showed the possible categories of responses.

Upon completion of the background questionnaire, the respondent worked through the assessment booklet while the interviewer followed along in the interview guide. The interview guide was provided because for some of the tasks, the interviewer had to read directions aloud to the respondent or hand the respondent an almanac or newspaper. For all other questions, the respondent followed the directives in the assessment booklet with no help or prompting from the interviewer. The assessment booklet was divided into four sections: a core and three blocks of literacy tasks. While the different sections of the assessment booklet were not strictly timed, the interviewer was instructed to move the respondent on to the next block if she or he went over the allotted time by more than five minutes.

The Achieved Sample

The goal of the survey was to achieve a projectable sample of eligible applicants from the two DOL populations. A total of 2,501 eligible JTPA applicants and 3,277

ES/UI claimants participated in the survey. Table 2.5 summarizes the number of respondents in the achieved sample by gender, race/ethnicity, and level of education.

Table 2.5 **The Achieved JTPA and ES/UI Samples***

	JTPA		ES/UI	
	n	Weighted N	n	Weighted N
Total	2,501	1,100,000	3,277	18,937,087
Males	1,008	451,859	1,756	10,631,408
Females	1,484	637,956	1,515	8,255,060
White	1,556	760,740	2,394	11,894,800
Black	663	230,405	375	2,189,197
Hispanic	159	64,912	384	3,824,079
Other	123	43,944	124	1,028,011
0-8 Years	176	64,975	120	511,432
9-12 Years	705	302,247	500	2,941,253
H.S. Dip. or GED	1,045	484,742	1,279	6,681,481
Some Postsecondary	442	184,509	861	5,154,636
College Degree	130	61,480	513	3,601,479

*Figures for the subgroups may not add up to equal the total figure because of missing data.

The original plan called for 56 assessments to be performed at each of the 72 locations for a total of 4,032 completed cases in each survey. Unfortunately there were no lists of potential participants from which to select via probability sampling. As a result, the persons to be assessed had to be chosen and persuaded to cooperate as they arrived at the local offices at the specified sampling times. Persons who refused to participate in the survey were replaced with the next arrival; that is, the next person who arrived in the office was asked to participate. In conventional household surveys, mechanisms are in place whereby attempts are made to convert refusals in order to boost response rates. In the DOL survey, however, it was not logistically feasible to attempt any such refusal conversion and, thereby, increase the response rates. Of the 5,079 JTPA applicants invited to participate, 2,501 or 49 percent agreed to participate. Of the 10,479 ES/UI claimants invited to participate, 3,277 or 31 percent agreed.

In order to be able to make comparisons of the weighted sample of respondents with the weighted sample of registrants, each selected office kept records of various demographic information for all registrants on the sampling days. For the most part, the differences in the weighted relative frequencies for the respondents and for all registrants are within the bounds to be expected given sampling variability. There are, however, two exceptions. For both the JTPA and the ES/UI achieved samples, males are underrepresented. In addition, the distribution of education levels for the respondents is somewhat different from that of the registrants as a whole. For JTPA, respondents with some high school education are overrepresented, while high school

graduates are underrepresented. For ES/UI, respondents with less than a high school education are underrepresented, and college graduates are overrepresented.

Nevertheless, the population estimated by the respondents is likely to be close to the full population of participants. Since the proportion of nonrespondents is so large, however, care must be exercised in estimating quantities that may be based on values associated with noncooperation.

Scoring

As the first shipments of booklets were received at ETS, copies were made of actual responses to the tasks. These sample responses were then scored by various staff, including the test developer and scoring supervisor, using either the scoring guides developed for the young adult tasks or guides prepared during the development of the new tasks. As the sample responses were scored, adjustments were made to the scoring guides for the new tasks to reflect the kinds of responses people were making.

The sample papers comprised the training sets used to train the readers who would score the survey booklets. The purposes of the training were to familiarize the readers with the scoring guides and to ensure a high level of agreement among the readers. Each task and its scoring guide were explained and sample responses that were representative of the score points in the guide were discussed. The readers then scored and discussed an additional 10 to 30 responses. After the group training had been completed, each reader scored all the tasks in about 130 booklets to give them practice in scoring actual books, as well as to give them opportunity to score more responses. A follow-up session was then held to discuss responses for which there was disagreement among the readers. The entire training process was completed in about three weeks.

Twenty percent of all the booklets were subject to a reader reliability check, which entailed a scoring by a second reader. To prevent the second reader from being influenced by the first reader's scores, the first reader masked the scores in every fifth booklet that he or she scored. These booklets were passed on for a second reader to score. The first reader's scores were then unmasked and if there was a discrepancy between the two scores, the scoring supervisor reviewed the response and discussed it with the readers involved.

The statistic used to report inter-reader reliability is the percentage of exact agreement— that is, the percentage of times the two readers agreed exactly in their scores. As can be seen from Table 2.6, the data show high degrees of inter-reader reliability across all the tasks in the survey, ranging from a low of 88 percent to a high of 100 percent, with an average percent agreement of 97. For 146 out of 165 open-ended tasks, the agreement was above 95 percent.

The inter-reader reliability for the DOL survey compares very favorably with the reliability for the young adult literacy (YAL) assessment, which arrived at inter-reader

reliability in the same way. For the young adult assessment, the percent of exact agreement ranged from a low of 86 to a high of 100. For 54 out of the 66 open-ended tasks that were scored, the agreement was 95 percent or above and the average agreement across all items was 96 percent.

Table 2.6 **Summary of Inter-Reader Reliability**

Survey	Low %	High %	Average Across All Tasks	# of Tasks: 95% or Above
DOL	88	100	97	146 out of 165
YAL	86	100	96	54 out of 66

Data Entry, Editing, and Quality Control

Using the Scan Optics key entry computer system, screens were designed to allow entry of both the background questionnaire and cognitive booklets. There were 26 different cognitive booklets containing 13 unique blocks, but each booklet contained only four blocks of data; therefore, one general data layout was designed to accommodate the data entry. Each of the four blocks was designated a set of locations so that the data entry operator continued keying as much data as was required for any given block and at the end skipped to the starting location of the next block. All data were re-entered by a second key entry person, and discrepancies between the first and second entries were resolved.

Programs were designed and executed to check the data for out-of-range values or inconsistent responses, lists were generated for any errors found in the data, and the original booklets were checked to resolve the inconsistencies. The background questionnaires were also checked to make sure that the skip patterns had been followed, and all data errors were resolved. In addition, a random set of booklets was selected to provide an additional check on the accuracy of transferring information from the booklets to the data file, the results of which allow us to say conservatively with 98.8 percent confidence that .002 is an upper limit on the true error rate; that is, we are quite sure that our true error rate is no larger than .002.

- *Scaling of the Simulation Tasks*

A major goal of this study was to estimate literacy proficiency for the JTPA and ES/UI eligible applicant populations as well as for major subgroups of interest. To accomplish this goal, it was necessary to cover as broad a range of content as possible. In extending the range of content coverage, it is necessary to move to some form of item sampling design. This is so because the entire set of tasks was too large to be administered to any single person. As a result, the options for reporting

data would have been limited to discussions about distributions of performance on individual tasks or about *mean* performance across tasks responded to by different samples of individuals. In the former case, the amount of information would have become unwieldy because of the large number of tasks; in the latter case, the ability to estimate distributions of performance would have been lost. One defensible and interpretable means for aggregating information across sets of exercises so that summary statements can be made about group distributions is to apply some form of scaling procedure. The one adopted for the young adult literacy assessment and carried over to this survey is item response theory.

Item Response Theory

Item response theory (IRT) is a mathematical model for estimating the probability that a particular person will respond correctly to a particular task from a pool of tasks. This probability is given as a function of a single parameter characterizing the proficiency of that person and one or more parameters characterizing the properties of the task. The particular IRT model employed in this assessment is the three-parameter logistic model. In this model, the task parameters include task discrimination, task difficulty, and lower asymptote. Task discrimination is the rate of change in the probability of obtaining the correct response to a given item in relationship to the respondent's proficiency. Task difficulty is the general level of a given item in terms of difficulty. The lower asymptote is the coefficient indicating the probability of correct response by respondents with very low proficiency. The specific mathematical expression of the IRT model used is as follows:

$$P(X_{ij} = 1|\theta_i, a_j, b_j, c_j) = c_j + \frac{(1 - c_j)}{1 + \exp[-1.7a_j(\theta_i - b_j)]} = P_j(\theta_i)$$

where

x_{ij} is the response of person i to item j, 1 if correct and 0 if incorrect

θ_i is the (unobservable) proficiency of person i [note that a person with higher proficiency has a greater probability of making correct responses]

a_j is the slope parameter of item j, characterizing its sensitivity to proficiency

b_j is its threshold parameter, characterizing its difficulty

c_j is its lower asymptote parameter, reflecting possibly non-zero chances of correct response from even persons of very low proficiency. For free response items, c was fixed at zero.

The term scale is used in two ways. A scale refers to a pool of tasks that is designed to represent a domain, such as prose literacy, document literacy, or quantitative literacy. Scaling is a process by which a specified domain of tasks is modeled to provide a particular type of numerical representation. IRT analyses within

a scale are generally carried out in two steps. First, the parameters of the tasks are estimated; second, estimates of individuals' or groups' levels of proficiency are estimated, with the item parameter estimates treated as known parameter values.

Linking the DOL Scales to the Young Adult Literacy Scales

The results for the DOL literacy survey are reported on the three scales that were established in the NAEP young adult literacy (YAL) assessment. For these scales, a number of new tasks unique to the DOL study were developed and were administered in conjunction with the tasks from the young adult assessment. The DOL scales are linked to the young adult scales through the young adult tasks. The composition of the item pool that was administered in the DOL survey is presented in Table 2.7.

Table 2.7 **Composition of Item Pool**

Scale	Number of YAL Tasks	Number of New Tasks	Total Number of Tasks
Prose	13	31	44
Document	63	30	93
Quantitative	14	29	43
Total	**90**	**90**	**180**

A unidimensional IRT model such as the three-parameter logistic model assumes that performance on all of the tasks in a domain can, for the most part, be accounted for by a single underlying proficiency variable. Subsequent IRT linking and scaling analyses treated each scale separately. The three steps involved in linking the scales are as follows:

1. Establish provisional IRT scales through common item parameter calibration based on a pooling of the DOL and YAL items
2. Estimate distribution of proficiencies on the provisional IRT scales using "plausible value" methodology
3. Align the DOL scale to the YAL scale by a linear transformation based on the commonality of proficiency distribution of the YAL sample

Item Parameter Estimation

Identical item calibration procedures were carried out separately for each of the three scales. Using a modified version of Mislevy and Bock's (1982) BILOG computer program, the three-parameter logistic IRT model was fit to each item (but with lower asymptote parameters fixed at zero for open-ended tasks) using sample weights.

It is important to note that since 1985, the tasks used in the young adult literacy assessment have been administered in several assessments in addition to the DOL survey. These assessments include the Oregon and Mississippi state surveys and a bridge study conducted under a separate phase of this DOL contract. Across all the assessments, over 13,000 individuals have responded to either the entire set or a subset of tasks administered in the DOL survey. The accumulated data from all surveys were included in a calibration sample (i.e., a sample used to determine the IRT parameters of each task) in order to obtain stable item parameter estimates. The current method of item parameter calibration simplifies scale linking procedures, since it effectively puts all survey results on a single, provisional common scale. Only linear indeterminacy needed to be resolved in order to align the provisional scale to the reporting scale.

In order to obtain unbiased parameter estimation, distributions of the proficiency scores for the separate assessment samples were estimated during calibration. It was necessary to do this because the samples for each of the assessments came from populations with different characteristics. In addition, the tasks administered to each assessment sample were not entirely the same. The calibration procedure, therefore, should take into account the possibility of such systematic interaction of population characteristics and tasks in order to obtain unbiased estimates of sample distributions and item parameters. For that reason, a normal distribution with a unique mean and variance for each assessment population was estimated concurrently with item parameters.

The fit of the IRT model to the sample is a necessary condition in order to obtain unbiased estimates of proficiencies. If an item is found not to be fitting to a particular subsample, there are two options. One option is to drop that item from the analysis entirely. The second option is to allow the item parameters to describe that particular subpopulation differently from other subpopulations. Model fit was assessed at the item level by examining BILOG likelihood ratio chi-square statistics for each survey sample as well as for the combined total sample. The fit was also evaluated by inspecting residuals from the fitted item response curves. For some items, there was evidence that the estimated parameters did not fit as well to a certain sample as compared with others; however, it was not always the same sample that the item paramenters did not fit and none of the chi-square statistics was significant. The results of this analysis indicated that it was not necessary to drop any item from calibration for lack of fit. (For a more detailed discussion, see Appendix C.)

Proficiency Estimation by Plausible Values

On most applications of IRT, the purpose is to make precise estimates about each respondent's proficiency for the purposes of individual diagnosis, selection, or placement. As a result, a sufficient number of items has to be administered to each

respondent, usually over several hours of testing time, to ensure that her or his proficiency can be estimated to a fine degree of accuracy. The distribution of proficiencies for a group of persons can be estimated directly without estimating individual proficiency. Such estimates can be obtained by the BIB spiralling design used in the DOL survey in which each sampled individual responds to a subset of literacy tasks instead of the entire set of items.

The advantage derived from more efficient estimation of population characteristics is offset by the inability to make precise statements about individuals. In such designs as the BIB spiral, however, all of the information available from the individual's task responses as well as background information can be used to make population estimates, even though the point estimates for individuals are not reliable enough to permit making decisions about the individual. Plausible values methodology was developed as a way to estimate key population features consistently and to approximate others as well as standard IRT procedures would. A detailed explanation of plausible values is given in Mislevy (1991).

Linking the DOL Scale to the YAL Scale

Once the plausible value methodology was applied, "proficiency estimates" were still on a provisional scale and needed to be transformed to the three literacy scales developed in the young adult assessment. As noted above, the item parameters of the young adult literacy scales were re-estimated using a larger sample and more accurate procedures than were available at the time of the 1985 assessment. The new item parameters on the provisional domain scales and the old transformation constants which were used to produce the young adult literacy scales, however, would not necessarily produce identical results on the young adult sample. New linear transformation constants were, therefore, found to match the mean and standard deviation of the current plausible value distribution of the young adult sample, based on the new item parameters. The same constants were applied to the proficiency distribution of the DOL survey samples. This linking procedure made the DOL scales comparable to the 1985 young adult literacy scales.

Evaluation of Differential Group Performance

In developing the DOL assessment, a deliberate attempt was made to select stimulus materials from across a broad range of adult materials so that highly specialized background knowledge would not provide an advantage to any one group over another. Similarly, questions were developed to tap skills relevant to the types and levels of processing associated with the literacy domain as reflected in practical everyday situations.

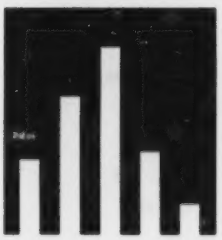
Despite such efforts, it is important to examine the extent to which we were successful in avoiding the systematic accumulation of construct irrelevant variance within each of the three domains of literacy; that is, factors that contribute to a person's score that are unrelated to the domain being assessed. This was accomplished by constructing test characteristic curves by gender and race/ethnicity for each population and literacy scale. (These curves are found in Appendix C.)

Overall, these curves indicate no significant differential performance across the range of proficiencies at which 95 percent of the population subgroups are located. It should be noted, however, that somewhat greater variation is observed at the low level of the curves. This most likely reflects the fact that relatively few items or people are estimated to be at these levels.

The procedures employed in accomplishing the above IRT analyses are described in detail in Appendix C.

CHAPTER 3

CHARACTERIZING THE JTPA AND ES/UI POPULATIONS



The fastest-growing jobs will be in professional, technical, and sales fields requiring the highest education and skill levels. Of the fastest-growing job categories, all but one, service occupations, require more than the median level of education for all jobs. Of those growing more slowly than average, not one requires more than the median education.

(Workforce 2000)

In this chapter, we have selected four variables that have been shown to be related to literacy proficiency — race/ethnicity, level of education, age, and labor force status — as a framework for characterizing the JTPA eligible applicants and ES/UI program participants. For race/ethnicity, the data are reported for White, Black, and Hispanic populations. Level of education is characterized according to the following categories: zero to eight years of education; nine to 12 years, but no high school diploma; a high school diploma or general educational development certificate (GED); some postsecondary education; and a two- or four-year degree or higher. There are five age categories that are self-evident from the tables. Labor force status characterizes the work pattern during the week preceding the assessment and is broken down into three categories: employed; not employed and looking for a job; and out of the labor force — that is, out of work and not looking for a job.

As appropriate, these four variables will be discussed in relation to respondents' early experiences, educational attainment, civic experiences, self-perceptions with respect to literacy skills, and current literacy activities. Specifically, this chapter will characterize JTPA eligible applicants and ES/UI program participants in terms of:

Early Experiences

- use of non-English language in the home
- language(s) spoken now
- literacy materials in the home while in high school
- work experience during high school

Educational Attainment

- level of education
- high school dropouts

Civic Experiences

- voting practices
- keeping abreast of public affairs

Self-Perceptions about Literacy Skills

- adequacy of literacy skills
- quality of job with respect to additional training
- help received for literacy activities

Current Literacy Activities

- reading activities on the job
- writing activities on the job
- frequency of newspaper reading

• *Early Experiences*

Use of Non-English Language in the Home

As the young adult assessment revealed, an important influence impacting literacy is the use of a language other than English in the home. Respondents were asked what language or languages were spoken in the home while they were growing up. As shown in Table 3.1, about 92 percent of the total JTPA applicants indicate that English only was spoken in the home; however, significantly* higher percentages of White and Black JTPA applicants (about 96 and 98 percent, respectively) report that English only was spoken in the home compared with Hispanic applicants (about 27 percent). Roughly equal percentages of Hispanic applicants report that either English and Spanish or Spanish only was spoken in the home. No significant patterns are apparent by level of education, age, and labor force status.

* Unless otherwise noted, any significant differences referred to in the report are statistically significant at the .05 level or greater and can be tested for using the standard t-test: $\frac{x_1 - x_2}{\sqrt{(SE_1)^2 + (SE_2)^2}}$.

Table 3.1 Percentages of JTPA Applicants Reporting Languages Spoken in the Home by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	n	Weighted N	Eng. Only	Eng./ Span.	Eng./ Other	Span. Only	Other Only
TOTAL	2,462	1,086,275	91.6 (1.6)	2.5 (0.8)	3.0 (0.8)	1.9 (0.6)	1.0 (0.2)
RACE/ETHNICITY							
White**	1,541	755,546	95.6 (1.2)	0.1 (0.0)	3.6 (1.1)	0.0 (0.0)	0.7 (0.1)
Black	646	224,555	98.3 (0.8)	0.1 (0.1)	0.3 (0.2)	0.0 (0.0)	1.3 (0.7)
Hispanic	155	63,928	27.2 (5.6)	39.8 (7.6)	0.0 (0.0)	31.5 (5.9)	1.3 (0.8)
LEVEL OF EDUCATION							
0-8 Years	168	61,669	90.8 (3.7)	2.0 (2.0)	2.4 (1.1)	3.9 (1.7)	0.9 (0.3)
9-12 Years	693	298,946	94.4 (1.5)	1.0 (0.5)	1.7 (0.8)	2.1 (0.9)	0.8 (0.3)
H.S. Dip. or GED	1,036	482,124	93.8 (1.4)	3.1 (1.2)	1.8 (0.6)	0.7 (0.4)	0.7 (0.2)
Some Postsecondary	433	180,953	84.3 (3.2)	3.5 (1.5)	6.7 (2.6)	3.9 (1.4)	1.5 (0.7)
College Degree	130	61,480	83.2 (8.0)	2.3 (2.2)	9.3 (5.6)	1.8 (1.4)	3.2 (2.3)
AGE							
16-20	481	181,834	95.2 (2.3)	2.9 (1.5)	0.4 (0.3)	1.1 (0.7)	0.3 (0.2)
21-25	481	211,984	92.6 (2.2)	3.6 (1.7)	2.3 (1.4)	1.1 (0.6)	0.3 (0.2)
26-31	495	229,891	91.0 (2.8)	2.5 (1.3)	2.2 (1.3)	2.4 (1.2)	2.0 (0.9)
32-45	724	338,451	90.8 (1.9)	2.0 (0.8)	4.2 (1.1)	2.3 (0.9)	0.7 (0.3)
46+	258	114,836	88.0 (3.3)	0.2 (0.2)	7.1 (2.4)	2.2 (1.0)	2.6 (0.9)
LABOR FORCE STATUS							
Employed	488	239,354	93.7 (1.7)	1.8 (1.0)	3.1 (1.3)	1.0 (0.6)	0.4 (0.2)
Not Employed	819	350,048	88.0 (2.3)	3.8 (1.1)	4.4 (1.2)	2.7 (1.0)	1.0 (0.4)
Out of Labor Force	1,155	496,874	93.1 (1.3)	1.8 (0.8)	2.1 (0.7)	1.7 (0.5)	1.3 (0.3)

*The numbers in parentheses are estimated standard errors.

In comparison with the JTPA population (91.6 percent), a smaller percentage (73.0 percent) of the ES/UI population report English only being spoken in the home (Table 3.2). The difference is reflected in the fact that significantly greater percentages of ES/UI participants report English and Spanish, English and another language, or Spanish only being spoken in the home. As with the JTPA population, a significantly smaller percentage of Hispanic participants than White and Black participants report English only spoken in the home; however, a significantly greater percentage of Hispanic ES/UI participants than Hispanic JTPA applicants report Spanish only (48 percent and 32 percent, respectively). In addition, a significantly greater percentage of White ES/UI participants than White JTPA applicants report English and another language in the home while growing up. When the data are considered with respect to level of education, a significantly greater percentage of the ES/UI participants with zero to eight years of education report Spanish only as the language in the home compared with all other levels of education, a difference that is not evident in the JTPA population. No significant patterns are evident by age or labor force status.

Table 3.2 **Percentages of ES/UI Participants Reporting Languages Spoken in the Home by Race/ Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Eng. Only	Eng./ Span	Eng./ Other	Span. Only	Other Only
TOTAL	3,259	18,777,685	73.0 (4.6)	8.1 (2.2)	6.3 (1.0)	10.1 (3.2)	2.5 (0.5)
RACE/ETHNICITY							
White	2,379	11,764,830	90.2 (1.2)	1.0 (0.4)	6.5 (0.7)	0.4 (0.3)	1.8 (0.4)
Black	374	2,187,454	97.3 (1.5)	1.5 (1.4)	0.9 (0.6)	0.0 (0.0)	0.3 (0.3)
Hispanic	383	3,820,677	14.6 (5.4)	35.4 (3.2)	1.3 (0.8)	48.1 (3.6)	0.0 (0.0)
LEVEL OF EDUCATION							
0-8 Years	120	511,432	40.5 (15.5)	1.1 (0.7)	0.8 (0.8)	56.0 (16.3)	1.6 (0.9)
9-12 Years	499	2,939,014	60.4 (10.7)	14.3 (5.4)	4.6 (1.8)	19.2 (6.6)	1.5 (0.9)
H.S. Dip. or GED	1,268	6,611,346	79.5 (3.9)	6.5 (1.3)	3.0 (0.7)	8.9 (3.5)	2.1 (0.8)
Some Postsecondary	859	5,147,834	74.5 (3.4)	10.0 (3.5)	7.5 (1.3)	5.3 (1.1)	2.3 (0.6)
College Degree	510	3,545,540	74.0 (3.4)	4.4 (1.9)	12.8 (2.8)	4.6 (1.7)	4.3 (0.9)
AGE							
16-20	314	1,845,836	60.2 (12.5)	14.2 (3.8)	4.3 (2.6)	20.0 (10.9)	1.3 (1.2)
21-25	614	3,415,067	67.1 (9.2)	13.4 (5.7)	5.0 (1.5)	14.0 (4.8)	0.5 (0.3)
26-31	725	4,142,289	76.3 (3.2)	9.5 (2.2)	3.6 (1.2)	8.8 (2.5)	1.8 (0.9)
32-45	1,050	6,029,401	77.8 (3.2)	4.1 (1.7)	6.8 (1.6)	8.1 (2.1)	2.8 (0.7)
46+	542	3,260,630	73.9 (4.4)	3.8 (1.2)	11.3 (3.0)	5.6 (2.5)	5.4 (1.1)
LABOR FORCE STATUS							
Employed	1,293	7,122,034	74.3 (3.7)	8.6 (2.3)	6.4 (1.4)	8.4 (2.2)	2.1 (0.6)
Not Employed	1,120	6,376,126	76.3 (3.4)	3.9 (0.8)	7.0 (1.0)	9.4 (3.9)	3.4 (1.2)
Out of Labor Force	846	5,279,525	67.3 (9.2)	12.7 (5.3)	5.2 (1.4)	13.1 (5.1)	1.8 (0.9)

*The numbers in parentheses are estimated standard errors.

Language(s) Spoken Now

Related to the use of a non-English language in the home is what language or languages are currently prevalent among the DOL client groups. Those respondents who indicate that a non-English language was spoken in the home while growing up were asked what language(s) they speak now. As shown in Table 3.3, almost 80 percent of the JTPA applicants who report speaking a non-English language while growing up indicate speaking English most often now. This is compared with 14 percent who report currently speaking Spanish and about 6 percent who report speaking another non-English language. The Hispanic population accounts for all of the Spanish-speaking applicants. In addition, a significantly higher percentage of college graduates report speaking English most often now than do applicants with a high school diploma or GED and fewer years of school completed. There is a tendency for the percentage of applicants who currently report speaking English to increase with age; however, the only significant difference is between individuals 46 years of age and older and those in the age range 16 to 20. There is no significant difference by employment status between those who report English and those who report Spanish as

the language spoken most often now. However, a significantly higher percentage of JTPA applicants who report a language other than English or Spanish report being out of the work force as compared with those who report being unemployed.

Table 3.3 **Percentages of JTPA Applicants Reporting Language(s) Spoken Now by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	English	Spanish	Other
TOTAL	271	104,731	78.3 (5.5)	14.4 (4.0)	5.5 (1.4)
RACE/ETHNICITY					
White	100	38,386	83.6 (8.0)	0.0 (0.0)	4.2 (1.7)
Black	31	9,599	32.8 (16.5)	0.0 (0.0)	13.0 (8.1)
Hispanic	111	47,556	85.1 (6.1)	31.1 (7.0)	1.2 (1.1)**
LEVEL OF EDUCATION					
0-8 Years	26	8,959	47.5 (22.6)	27.5 (9.4)	3.9 (1.4)
9-12 Years	63	19,969	76.9 (9.6)	20.2 (9.7)	5.0 (3.6)
H.S. Dip. or GED	94	32,696	80.9 (6.5)	7.8 (4.1)	2.5 (1.6)
Some Postsecondary	65	31,733	81.0 (8.4)	12.1 (4.1)	6.4 (2.6)
College Degree	22	10,429	97.6 (1.9)	20.8 (14.6)	15.6 (9.1)
AGE					
16-20	34	11,989	68.9 (8.8)	17.4 (5.7)	3.2 (3.5)
21- 25	47	17,609	72.9 (13.6)	11.9 (6.2)	1.7 (1.6)
26-31	59	24,788	76.7 (10.4)	23.0 (8.6)	8.3 (4.0)
32-45	79	32,782	84.6 (5.1)	11.7 (6.5)	5.9 (2.4)
46+	44	13,919	92.8 (4.3)	9.6 (5.9)	8.2 (4.6)
LABOR FORCE STATUS					
Employed	45	17,228	81.0 (9.0)	13.2 (7.1)	5.1 (3.2)
Not Employed	100	45,042	84.1 (6.6)	15.6 (6.8)	2.2 (1.4)
Out of Labor Force	126	42,461	70.9 (8.2)	13.6 (5.0)	9.3 (3.2)

* The numbers in parentheses are estimated standard errors.

** Respondents could indicate more than one language; therefore, percentages may add up to more than 100.

The ES/UI population is slightly different from the JTPA population with respect to language(s) spoken now. As shown in Table 3.4, over 80 percent of the ES/UI population report speaking English, but about 31 percent also report speaking Spanish. There appear to be no significant differences in the percentages of participants speaking English by racial/ethnic groups; however, nearly half the Hispanic participants report speaking Spanish, compared with 31 percent of the Hispanic JTPA applicants. When the ES/UI population is characterized by level of education, the percentage of participants speaking Spanish is significantly greater for those with less than a high school education than it is for those with the four other levels of education. In addition, a significantly lower percentage of those with a college degree report speaking Spanish compared with participants who report other levels of education.

Table 3.4 Percentages of ES/UI Participants Reporting Language(s) Spoken Now by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	n	Weighted N	English	Spanish	Other
TOTAL	585	5,293,871	82.6 (2.1)	30.8 (4.6)	6.7 (3.0)**
RACE/ETHNICITY					
White	182	1,325,328	82.4 (3.4)	0.2 (0.2)	8.3 (3.2)
Black	10	65,581	83.8 (20.9)	0.0 (0.0)	16.2 (20.9)
Hispanic	325	3,264,412	80.6 (3.8)	49.7 (4.3)	0.1 (0.1)
LEVEL OF EDUCATION					
0-8 Years	67	304,057	41.7 (15.9)	82.9 (10.4)	0.9 (1.0)
9-12 Years	115	1,175,436	84.0 (2.2)	35.3 (6.1)	3.1 (3.6)
H.S. Dip. or GED	172	1,434,529	83.1 (3.2)	29.2 (4.4)	3.6 (1.9)
Some Postsecondary	130	1,325,856	89.0 (1.1)	33.4 (6.6)	5.2 (2.8)
College Degree	99	1,014,971	87.2 (4.1)	8.7 (2.8)	19.2 (6.2)
AGE					
16-20	54	739,326	91.5 (5.8)	39.6 (13.4)	3.2 (5.4)
21-25	127	1,130,471	83.8 (5.1)	35.6 (3.7)	3.5 (2.3)
26-31	108	1,022,011	80.7 (3.8)	36.2 (5.6)	3.2 (3.0)
32-45	175	1,421,461	80.7 (4.0)	28.6 (5.8)	9.2 (4.0)
46+	116	909,492	80.2 (6.6)	16.5 (4.5)	14.0 (5.4)
LABOR FORCE STATUS					
Employed	214	1,889,929	83.4 (4.0)	30.0 (4.7)	9.9 (3.2)
Not Employed	198	1,561,021	81.6 (5.6)	26.3 (8.4)	7.8 (4.8)
Out of Labor Force	173	1,842,921	82.5 (7.4)	35.5 (4.4)	2.5 (1.9)

* The numbers in parentheses are estimated standard errors.

** Respondents could indicate more than one language; therefore, percentages may add up to more than 100.

Literacy Materials in the Home

Another characteristic of the respondent's home environment that was found to relate to levels of literacy proficiency in the young adult assessment is the number of literacy materials in the home. Respondents were asked if they had any of six different materials written in English in their home while they were in high school. The list included a daily or weekly newspaper, magazines, more than 25 books, an encyclopedia, a dictionary, and a personal computer. To provide some overall index of literacy resources available in the home, a composite was formed by summing the "yes" responses to each of these materials. The means and standard deviations by race/ethnicity, level of education, age, and employment status are shown in Table 3.5 for JTPA and in Table 3.6 for ES/UI.

As can be seen in Table 3.5, for JTPA there is a tendency for race/ethnicity, education level, and age to be related to literacy materials in the home. As shown in Table 3.6, for ES/UI race/ethnicity and level of education seem to be related to literacy materials in the home. For both populations the standard deviations for the

Table 3.5 **Mean of the Composite Number of Literacy Materials in the Home for JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status**

	n	Weighted N	Mean	Standard Deviation
TOTAL	2,490	1,089,170	4.1	1.3
RACE/ETHNICITY				
White	1,551	755,438	4.2	1.2
Black	658	225,821	4.0	1.4
Hispanic	159	64,912	3.6	1.5
LEVEL OF EDUCATION				
0-8 Years	176	64,975	3.5	1.6
9-12 Years	703	301,111	4.0	1.3
H.S. Dip. or GED	1,040	477,930	4.1	1.3
Some Postsecondary	440	183,517	4.3	1.3
College Degree	130	61,480	4.4	1.1
AGE				
16-20	486	182,471	4.3	1.2
21-25	484	213,062	4.3	1.3
26-31	503	233,511	4.3	1.1
32-45	733	340,217	3.9	1.3
46+	255	109,154	3.5	1.5
LABOR FORCE STATUS				
Employed	490	238,974	4.2	1.3
Not Employed	827	351,874	4.1	1.4
Out of Labor Force	1,173	498,322	4.0	1.3

reported means are relatively large, indicating considerably more variability within a group than between groups.

While the data in Tables 3.5 and 3.6 suggest that these groups, on average, had roughly equal access to a common set of basic literacy materials, it is interesting to see if there are any significant differences among the groups with respect to which materials they had in the home. As shown in Table 3.7, for each of the categories except personal computers, at least 70 percent of the total JTPA population report having the different types of literacy materials in their homes while in high school. As can be seen in Table E.1 in Appendix E, this figure is true for each of the three racial/ethnic groups, with the exception of two categories for the Hispanic population. Only about 60 percent of the Hispanic applicants report having more than 25 books and an encyclopedia in English in the home. In addition, in comparison with those having higher levels of education, a smaller percentage of those with less than a high school education report having a daily or weekly newspaper and an encyclopedia while in high school. As might be expected, a greater percentage of 16- to 20-year-olds and 21- to 25-year-olds report having computers in the home as compared with the other age groups.

Table 3.6 Mean of the Composite Number of Literacy Materials in the Home for ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status

	n	Weighted N	Mean	Standard Deviation
TOTAL	3,268	18,889,347	4.2	1.3
RACE/ETHNICITY				
White	2,390	11,882,675	4.5	1.1
Black	375	2,189,197	4.2	1.2
Hispanic	380	3,812,752	3.6	1.6
LEVEL OF EDUCATION				
0-8 Years	116	499,787	2.7	2.0
9-12 Years	498	2,932,751	3.8	1.4
H.S. Dip. or GED	1,279	6,681,480	4.3	1.3
Some Postsecondary	859	5,151,331	4.4	1.1
College Degree	513	3,601,479	4.5	1.1
AGE				
16-20	314	1,845,835	4.7	1.2
21-25	614	3,413,873	4.4	1.2
26-31	725	4,140,614	4.3	1.2
32-45	1,055	6,096,341	4.1	1.3
46+	546	3,308,221	4.0	1.4
LABOR FORCE STATUS				
Employed	1,295	7,153,537	4.3	1.3
Not Employed	1,126	6,407,458	4.3	1.3
Out of Labor Force	847	5,328,351	4.2	1.4

Table 3.7 Percentages of JTPA Applicants Reporting Presence or Absence of Specific Materials in Their Home While Growing Up*

	Total n	Weighted N	Yes	No
Newspaper	2,484	1,084,264	84.1 (1.4)	14.8 (1.4)
Magazines	2,475	1,072,811	83.3 (1.3)	15.5 (1.3)
>25 Books	2,469	1,065,842	74.6 (1.5)	24.2 (1.3)
Encyclopedia	2,477	1,074,532	74.2 (1.3)	24.4 (1.4)
Dictionary	2,471	1,075,294	92.7 (0.7)	6.3 (0.7)
Personal Computer	2,434	1,039,718	6.2 (1.2)	93.2 (1.2)

*The numbers in parentheses are estimated standard errors.

As shown in Table 3.8, of the total ES/UI population, over 70 percent report having each of the different types of materials except personal computers in their homes while in high school. This is true for the White and Black populations but there are some differences for the Hispanic population, as can be seen in Table E.2 in Appendix E. Less than 70 percent of the Hispanic population report having a daily or weekly newspaper, more than 25 books, or an encyclopedia in English in their homes. There also seems to be a relationship between level of education and the presence of these materials in the home. Significantly fewer participants in the two groups with less than a high school diploma report having newspapers, more than 25 books, encyclopedias, and personal computers in their homes. Significantly fewer participants with just zero to eight years of education report having magazines and dictionaries in their homes. As in the case of the JTPA population, a greater percentage of the 16- to 20- and 21- to 25-year-old participants report having a personal computer in their home; however, 27 percent of the 16- to 20-year-old participants in the ES/UI population report having a computer, compared with 15 percent of those at that age in the JTPA population, although the difference is not statistically significant.

Table 3.8 **Percentages of ES/UI Participants Reporting Presence or Absence of Specific Materials in Their Home While Growing Up***

	Total n	Weighted N	Yes	No
Newspaper	3,263	18,866,194	85.6 (1.3)	14.0 (1.3)
Magazines	3,260	18,867,922	84.6 (1.3)	14.8 (1.3)
>25 Books	3,254	18,800,127	77.7 (2.0)	21.6 (2.0)
Encyclopedia	3,255	18,810,660	76.2 (1.1)	23.6 (1.1)
Dictionary	3,252	18,732,210	94.9 (0.8)	4.9 (0.8)
Personal Computer	3,199	18,505,078	7.5 (0.6)	92.1 (0.6)

*The numbers in parentheses are estimated standard errors.

Work Experience During High School

An area of particular concern to policymakers is work experience while attending high school. Respondents were asked whether they worked more than 20 hours a week while going to high school. Table 3.9 shows the distributions of those JTPA applicants who report working year-round, summers only, and during the school year only while attending high school as well as the distributions for those who report not working and not attending high school. Some 63 percent of the JTPA applicants report that they did not work more than 20 hours a week during high school. Of those who did work, most report working year-round. This is true for the different racial/ethnic groups as well. However, a significantly smaller percentage of Black applicants report working year-round compared with White applicants. While there are no significant differences by education level for the percentages of those who report they did not work, a significantly smaller percentage of those with nine to 12 years of

education report working year-round compared with those with a high school diploma or GED. There are no significant differences in these distributions by age, but a significantly greater percentage of JTPA applicants who were out of the labor force report not working during high school compared with those who were employed.

Table 3.9 **Distributions of JTPA Applicants Who Worked More Than 20 Hours a Week While in High School by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Yes Yr Round	Yes Summer Only	Yes School Yr	No	Did Not Attend H.S.
TOTAL	2,484	1,094,832	22.3 (1.6)	6.9 (1.5)	4.5 (0.7)	62.8 (1.5)	3.6 (0.8)
RACE/ETHNICITY							
White	1,550	758,701	24.9 (2.1)	7.2 (2.0)	3.2 (0.6)	61.1 (1.2)	3.6 (1.1)
Black	657	229,077	14.4 (3.1)	7.3 (1.8)	7.0 (1.6)	68.8 (4.6)	2.5 (1.2)
Hispanic	157	64,470	25.6 (7.8)	[illegible] (1.6)	11.2 (4.1)	59.0 (8.8)	2.1 (0.9)
LEVEL OF EDUCATION							
9-12 Years	702	301,652	18.5 (2.0)	7.2 (1.9)	4.8 (1.3)	68.5 (2.6)	1.1 (0.6)
H.S. Dip. or GED	1,038	482,488	25.8 (2.4)	6.7 (1.6)	4.3 (0.9)	61.9 (2.8)	1.3 (0.4)
Some Postsecondary	439	183,665	25.2 (3.2)	7.6 (1.7)	6.6 (1.7)	60.3 (3.5)	.3 (0.4)
College Degree	130	61,480	23.6 (6.2)	10.4 (5.9)	0.4 (0.3)	65.6 (6.3)	0.0 (0.0)
AGE							
16-20	485	184,590	21.4 (3.3)	6.1 (2.2)	5.8 (1.9)	62.3 (3.2)	4.4 (1.6)
21-25	482	212,221	23.3 (2.8)	8.6 (2.9)	4.0 (1.3)	62.5 (2.7)	1.7 (0.7)
26-31	502	232,856	19.9 (2.5)	5.9 (1.9)	5.0 (1.7)	66.9 (3.0)	2.2 (0.7)
32-45	728	339,546	24.1 (2.4)	6.4 (1.2)	4.7 (1.7)	60.5 (3.5)	4.3 (1.5)
46+	259	115,018	21.6 (3.8)	8.7 (3.2)	1.7 (1.2)	61.2 (4.4)	6.8 (3.1)
LABOR FORCE STATUS							
Employed	488	239,754	27.6 (2.8)	7.8 (2.5)	3.8 (0.9)	57.4 (2.9)	3.4 (1.5)
Not Employed	825	351,988	21.7 (2.9)	8.3 (2.2)	4.7 (1.1)	61.9 (2.3)	3.4 (0.9)
Out of Labor Force	1,171	503,090	20.2 (2.2)	5.5 (1.0)	4.6 (0.9)	66.0 (2.2)	3.8 (1.1)

*The numbers in parentheses are estimated standard errors.

Table 3.10 shows the distributions of work experiences for the ES/UI participants during high school. As with the JTPA population, more than half the ES/UI participants (58.6 percent) report not working more than 20 hours per week during high school, and a greater percentage of those who held a job while in high school worked year-round. When the participants are characterized by race/ethnicity, a significantly higher percentage of Black ES/UI participants than White participants report that they did not work more than 20 hours a week while in high school. On the other hand, a significantly smaller percentage of Black than White participants report working year-round, but a significantly higher percentage of Black and Hispanic participants report working during the school year only than do White participants. Significantly fewer participants with nine to 12 years of education or with a college degree report working year-round as compared with those at the other educational

levels. In addition, there is some difference in work history among the various age groups. A larger percentage of people in the age ranges 32 and above report not working more than 20 hours while in high school as compared with participants in the age ranges 21 to 31. In contrast with the JTPA population, there are no significant differences by employment status.

Table 3.10 **Distributions of ES/UI Participants Who Worked More Than 20 Hours a Week While in High School by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Yes Yr -Round	Yes Summer Only	Yes School Yr	No	Did Not Attend H.S.
TOTAL	3,251	18,774,745	26.0 (1.3)	9.8 (1.1)	4.2 (0.7)	58.6 (1.7)	1.5 (0.5)
RACE/ETHNICITY							
White	2,381	11,843,615	29.0 (1.3)	10.4 (0.8)	2.9 (0.6)	56.6 (1.7)	1.0 (0.3)
Black	373	2,183,531	17.6 (2.9)	8.2 (2.4)	6.1 (1.3)	67.5 (3.9)	0.6 (0.4)
Hispanic	376	3,767,035	22.7 (4.7)	8.6 (1.7)	7.3 (1.4)	57.6 (7.1)	3.8 (2.6)
LEVEL OF EDUCATION							
9-12 Years	500	2,941,253	19.7 (3.8)	11.0 (2.2)	4.4 (1.1)	63.1 (4.1)	1.7 (0.9)
H.S. Dip. or GED	1,270	6,646,561	28.7 (2.1)	6.9 (0.9)	4.4 (0.8)	59.2 (2.3)	0.7 (0.2)
Some Postsecondary	854	5,092,539	30.4 (1.5)	9.9 (1.3)	5.4 (1.8)	54.1 (2.2)	0.1 (0.1)
College Degree	511	3,589,282	22.0 (1.9)	15.3 (1.8)	1.8 (0.8)	60.9 (2.2)	0.0 (0.0)
AGE							
16-20	314	1,845,836	28.2 (7.1)	10.3 (2.1)	9.5 (3.5)	50.9(10.3)	1.1 (1.0)
21-25	609	3,385,089	31.0 (2.9)	6.6 (1.9)	6.8 (2.9)	54.6 (2.9)	1.1 (0.7)
26-31	720	4,116,183	32.9 (1.9)	9.8 (1.2)	3.1 (1.1)	53.4 (2.4)	0.7 (0.2)
32-45	1,051	6,045,728	22.5 (1.5)	10.4 (1.6)	3.2 (0.9)	62.3 (1.9)	1.7 (0.7)
46+	544	3,302,979	16.8 (1.5)	11.9 (2.0)	1.6 (0.5)	66.9 (3.2)	2.8 (1.1)
LABOR FORCE STATUS							
Employed	1,291	7,101,245	26.4 (2.2)	7.5 (1.0)	4.3 (1.5)	60.3 (3.1)	1.5 (0.6)
Not Employed	1,116	6,361,005	27.6 (1.3)	13.0 (1.6)	4.0 (0.9)	54.0 (2.6)	1.4 (0.6)
Out of Labor Force	844	5,312,494	23.5 (2.2)	9.0 (2.2)	4.1 (1.1)	61.8 (4.0)	1.6 (0.6)

*The numbers in parentheses are estimated standard errors.

• *Educational Attainment*

Level of Education

As shown in Table 3.11, nearly 45 percent of the JTPA population report either a high school diploma or GED, and slightly more than 20 percent have either some postsecondary education (16.8 percent) or a college degree (5.6 percent). There are no significant differences in educational attainment by race/ethnicity; however, a significantly larger percentage of those aged 16 to 20 report zero to eight years of education than do applicants in the three age ranges from 21 through 45. With respect to employment status, a significantly higher percentage of applicants not employed but still in the labor force report a college degree than do those out of

the labor force. In addition and perhaps more importantly, significantly higher percentages of JTPA applicants who did not earn a high school diploma or GED report being out of the labor force.

Table 3.11 Highest Grade of School Completed by JTPA Applicants by Race/Ethnicity, Age, and Labor Force Status*

	n	Weighted N	0-8 Yrs	9-12 Yrs	H.S. Dip or GED	Some Postsec	College Degree
TOTAL	2,498	1,097,953	5.9 (1.1)	27.5 (1.6)	44.1 (2.1)	16.8 (1.7)	5.6 (1.3)
RACE/ETHNICITY							
White	1,555	760,582	5.5 (1.3)	26.7 (2.1)	46.3 (2.3)	14.9 (1.5)	6.5 (1.7)
Black	662	229,460	6.0 (1.9)	29.9 (4.9)	40.3 (5.1)	20.8 (4.5)	3.0 (1.5)
Hispanic	159	64,912	8.1 (3.0)	22.1 (2.9)	38.5 (5.0)	24.6 (6.4)	6.6 (2.6)
AGE							
16-20	489	185,317	11.0 (2.9)	51.6 (5.2)	31.4 (3.5)	6.0 (1.9)	0.0 (0.0)
21-25	485	213,863	2.1 (0.6)	25.5 (2.4)	54.0 (3.2)	16.5 (2.6)	1.9 (0.8)
26-31	505	233,885	4.5 (1.2)	29.1 (3.1)	44.6 (4.1)	15.2 (3.6)	6.7 (2.8)
32-45	732	340,060	4.5 (1.5)	18.4 (3.3)	44.0 (3.8)	23.0 (2.9)	10.1 (2.3)
46+	258	114,073	8.8 (3.0)	15.0 (3.3)	49.0 (5.7)	20.5 (4.6)	6.6 (2.3)
LABOR FORCE STATUS							
Employed	492	241,746	3.5 (1.1)	24.3 (3.7)	45.8 (3.6)	16.9 (2.0)	9.5 (4.1)
Not Employed	828	352,886	4.5 (0.9)	21.3 (2.3)	46.6 (3.0)	20.2 (2.2)	7.4 (1.5)
Out of Labor Force	1,178	503,321	8.1 (1.6)	33.5 (2.7)	41.6 (2.4)	14.4 (2.2)	2.5 (0.7)

*The numbers in parentheses are estimated standard errors.

For the ES/UI population, as shown in Table 3.12, about 35 percent of the participants report having a high school diploma or GED while close to 50 percent report either some postsecondary education or a college degree. Significantly larger percentages of ES/UI participants than JTPA participants report some postsecondary education and college degrees. In contrast to the JTPA population, a significantly larger percentage of White ES/UI participants report having a college degree than do either Black or Hispanic ES/UI participants. When compared with either Black or White ES/UI participants, a larger percentage of Hispanic participants report zero to eight years of education while a significantly smaller percentage report earning a high school diploma or GED. While a few comparisons reach statistical significance, there do not appear to be any meaningful trends in the age or employment status variables.

Table 3.12 Highest Grade of School Completed by ES/UI Participants by Race/Ethnicity, Age, and Labor Force Status*

	n	Weighted N	0-8 Yrs.	9-12 Yrs.	H.S. Dip or GED	Some Postsec.	College Degree
TOTAL	3,273	18,890,282	2.7 (0.6)	15.6 (2.0)	35.4 (1.6)	27.3 (2.3)	19.1 (1.3)
RACE/ETHNICITY							
White	2,392	11,887,017	1.2 (0.3)	11.6 (1.4)	36.5 (2.0)	28.2 (2.9)	22.3 (1.9)
Black	375	2,189,197	0.6 (0.4)	18.4 (3.2)	45.1 (7.8)	27.0 (3.8)	8.9 (1.7)
Hispanic	383	3,809,344	8.0 (2.8)	28.0 (6.4)	28.5 (2.2)	25.9 (5.3)	9.6 (1.6)
AGE							
16-20	313	1,841,159	1.2 (1.1)	35.2 (5.5)	43.4 (5.0)	18.4 (2.7)	1.8 (1.5)
21-25	616	3,418,336	2.6 (1.5)	19.2 (2.9)	42.0 (4.5)	26.2 (2.6)	10.0 (2.0)
26-31	727	4,146,004	1.2 (0.5)	14.1 (2.3)	38.6 (3.0)	27.3 (2.0)	18.8 (1.8)
32-45	1,057	6,092,100	3.8 (0.7)	10.4 (1.6)	30.4 (1.7)	29.5 (2.9)	25.9 (2.4)
46+	546	3,308,221	3.7 (1.8)	10.8 (2.1)	29.7 (3.0)	29.7 (5.6)	26.2 (3.6)
LABOR FORCE STATUS							
Employed	1,298	7,149,839	2.2 (0.6)	11.1 (1.8)	36.3 (1.9)	31.7 (1.9)	18.7 (1.9)
Not Employed	1,125	6,402,645	2.4 (0.6)	16.1 (2.5)	35.5 (2.6)	24.3 (2.9)	21.8 (1.9)
Out of Labor Force	850	5,337,797	3.7 (1.0)	21.0 (2.8)	34.0 (2.5)	25.0 (3.4)	16.3 (1.7)

*The numbers in parentheses are estimated standard errors.

High School Dropouts

As discussed in Chapter 7 of this report and also in the young adult literacy report, educational attainment is among the most important background variables in predicting literacy proficiencies. Thus, it becomes of particular importance to understand better some of the experiences of JTPA applicants and ES/UI participants who report not earning a high school diploma. Table 3.13 shows that some 42 percent of JTPA applicants and 23 percent of ES/UI participants report leaving school before

Table 3.13 Percentages of JTPA Applicants and ES/UI Participants Reporting Whether or Not They Earned a High School Diploma by Race/Ethnicity and Labor Force Status*

	JTPA				ES/UI			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,438	1,070,962	57.6 (2.8)	42.4 (2.8)	3,244	18,655,296	76.7 (2.1)	23.3 (2.1)
RACE/ETHNICITY								
White	1,523	743,840	58.7 (3.2)	41.3 (3.2)	2,373	11,811,074	80.3 (2.4)	19.7 (2.4)
Black	640	220,975	57.6 (6.6)	42.4 (6.6)	375	2,189,197	76.7 (4.6)	23.3 (4.6)
Hispanic	156	64,399	60.1 (6.4)	39.9 (6.4)	373	3,650,301	63.0 (3.1)	37.1 (3.1)
LABOR FORCE STATUS								
Employed	484	237,662	61.8 (4.1)	38.2 (4.1)	1,289	7,100,021	80.6 (2.7)	19.4 (2.7)
Not Employed	813	347,399	64.6 (3.7)	35.4 (3.7)	1,113	6,306,979	75.9 (2.9)	24.1 (2.9)
Out of Labor Force	1,141	485,900	50.5 (2.8)	49.5 (2.8)	842	5,248,296	72.5 (3.0)	27.5 (3.0)

*The numbers in parentheses are estimated standard errors.

earning a diploma. These individuals were asked why they stopped their schooling when they did, whether they ever participated in an Adult Basic Education (ABE) program, and whether or not they ever studied for or received a GED.

Reasons for Not Completing High School. Responses to an open-ended question asking respondents why they left school were categorized as one of the following: financial problems; going to work or into the military; pregnancy; loss of interest in school and/or behavior problems; poor grades or academic problems; family or personal problems that were not necessarily school-related; and other.

Table 3.14 shows the distributions of reasons given by JTPA applicants for not completing high school. The two most frequently reported reasons for dropping out of school are family problems and lack of interest in school. This is true for the White and Hispanic applicants; however, for Black applicants, the main reasons given are family problems and pregnancy. Across the variables reported here, relatively few JTPA applicants cite academic problems as the primary reason for not completing high school. The same finding was noted in the young adult study. Yet the data in both assessments indicate a very strong relationship between literacy skills and academic achievement.

For all age groups, one of the two main reasons for not completing high school is family problems; however, for 16- to 20-year-olds and 21- to 25-year-olds lack of interest is the other frequently cited reason, while for the other three age groups the other main reason is going to work or into the military. With respect to employment status, for those who were not employed, going to work or into the military is the most reported reason for leaving school, followed by lack of interest and family problems. For those out of the labor force, pregnancy is another significant reason for dropping out of high school.

Table 3.15 shows the distributions of reasons given by ES/UI participants for not completing high school. Across each of the variables reported here, the two most salient reasons for leaving school before earning a diploma are family problems and entering either the work force or the military. Lack of interest in schooling is also cited frequently. For Black ES/UI participants, pregnancy is cited about as frequently as going to work or into the military. As with the JTPA applicants, academic problems are not frequently given as the main reason for leaving school.

Participation in an Adult Basic Education Program. Of the JTPA applicants and ES/UI participants who were asked, some 40 percent of each population indicate they had participated in an ABE program. As shown in Table 3.16, the data are remarkably similar for both DOL populations. The participation rate of 40 percent generally holds across racial/ethnic groups, age, and labor force status. The only exceptions seem to be three of the JTPA respondent age groups: 23 percent of 16- to 20-year-olds and 51 percent of 21- to 25-year-olds and of those 46 and older indicate they had participated in an ABE program.

Table 3.14 Reason Reported by JTPA Applicants for Dropping Out of School by Race/Ethnicity, Age, and Labor Force Status*

	n	Weighted N	Financial Problem	Working/ Military	Pregnant	No Interest	Academic Problem	Family Problem
TOTAL	1,058	429,238	2.6 (0.9)	15.7 (1.9)	13.8 (1.7)	20.0 (1.6)	5.7 (0.8)	23.1 (2.0)**
RACE/ETHNICITY								
White	677	292,345	3.1 (1.1)	14.3 (1.7)	12.3 (1.9)	21.9 (2.2)	5.3 (1.2)	22.5 (2.0)
Black	251	87,240	0.7 (0.2)	14.2 (4.0)	20.5 (3.3)	16.9 (3.2)	5.3 (1.1)	26.0 (4.7)
Hispanic	66	22,929	3.7 (3.0)	14.5 (3.3)	12.8 (8.6)	15.5 (2.6)	9.0 (4.5)	27.5 (7.6)
AGE								
16-20	304	112,984	2.3 (1.3)	10.0 (3.1)	12.0 (2.7)	24.3 (4.0)	6.0 (1.4)	19.8 (3.5)
21-25	180	68,498	2.3 (2.1)	12.2 (3.7)	16.0 (4.0)	30.1 (5.6)	2.9 (1.1)	21.8 (4.4)
26-31	211	94,143	0.3 (0.3)	19.6 (4.4)	14.8 (4.1)	16.7 (3.0)	3.5 (0.9)	26.2 (3.3)
32-45	248	106,125	5.3 (2.1)	18.1 (4.0)	14.2 (3.3)	15.7 (4.5)	8.2 (2.9)	22.1 (4.3)
46+	98	40,329	3.0 (1.7)	21.4 (5.0)	8.6 (4.1)	10.7 (4.6)	8.8 (3.5)	34.1 (8.8)
LABOR FORCE STATUS								
Employed	187	83,891	1.7 (1.2)	15.4 (3.3)	11.8 (3.6)	19.6 (3.2)	3.5 (1.5)	17.6 (3.0)
Not Employed	308	118,001	4.7 (2.2)	31.6 (6.1)	3.3 (1.1)	20.9 (3.9)	6.3 (2.0)	20.7 (3.3)
Out of Labor Force	563	227,347	1.9 (0.9)	7.5 (1.7)	19.9 (3.6)	19.7 (2.4)	6.1 (1.0)	26.4 (2.8)

* The numbers in parentheses are estimated standard errors.

** Figures do not add up to 100 percent because the percentages for the "other" category are not included.

Table 3.15 Reason Reported by ES/UI Participants for Dropping Out of School by Race/Ethnicity, Age, and Labor Force Status*

	n	Weighted N	Financial Problem	Working/ Military	Pregnant	No Interest	Academic Problem	Family Problem
TOTAL	770	4,080,972	4.2 (1.4)	29.5 (2.7)	9.1 (1.2)	15.5 (2.4)	3.4 (0.9)	22.6 (2.6)**
RACE/ETHNICITY								
White	504	2,201,118	3.1 (1.0)	28.9 (2.6)	6.2 (2.2)	17.8 (2.1)	3.5 (1.1)	25.4 (3.7)
Black	95	474,346	0.6 (0.7)	29.3 (3.9)	24.9 (2.8)	17.2 (5.2)	5.1 (2.7)	15.1 (6.3)
Hispanic	149	1,258,229	7.5 (3.1)	33.9 (7.3)	7.9 (4.2)	7.7 (0.7)	1.7 (1.2)	21.1(11.3)
AGE								
16-20	100	568,019	9.1 (8.9)	20.6 (8.6)	2.0 (1.0)	17.7 (5.3)	4.1 (3.0)	20.7 (5.6)
21-25	139	915,980	3.7 (1.6)	35.1 (3.0)	7.9 (3.1)	16.4 (2.6)	1.5 (0.6)	20.4 (4.0)
26-31	158	808,675	2.0 (0.9)	29.4 (7.3)	14.8 (4.3)	20.3 (5.4)	4.6 (2.4)	14.9 (3.6)
32-45	232	1,154,193	2.3 (1.1)	23.7 (5.1)	11.1 (2.5)	14.0 (4.1)	4.8 (1.6)	31.3 (5.5)
46+	135	575,104	7.2 (2.7)	44.0 (4.3)	4.6 (2.0)	9.2 (2.5)	1.4 (1.0)	23.6 (4.3)
LABOR FORCE STATUS								
Employed	278	1,301,798	7.3 (4.2)	27.2 (5.5)	10.0 (1.4)	15.5 (3.6)	2.1 (0.9)	28.3 (2.8)
Not Employed	257	1,452,295	2.6 (0.9)	37.1 (4.5)	4.6 (1.8)	16.3 (2.5)	2.4 (0.7)	19.9 (5.1)
Out of Labor Force	235	1,326,878	2.8 (1.2)	23.4 (2.4)	13.1 (2.2)	14.5 (4.4)	5.7 (2.6)	19.8 (3.2)

* The numbers in parentheses are estimated standard errors.

** Figures do not add up to 100 percent because the percentages for the "other" category are not included.

Table 3.16 **Percentages of JTPA Applicants and ES/UI Participants Who Report Participating in an ABE Program by Race/Ethnicity, Age, and Labor Force Status***

	JTPA				ES/UI			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	1,074	438,909	40.3 (2.7)	59.7 (2.7)	780	4,221,011	40.8 (1.5)	59.2 (1.5)
RACE/ETHNICITY								
White	686	300,184	38.3 (2.6)	61.7 (2.6)	508	2,240,052	39.0 (2.0)	61.0 (2.0)
Black	252	88,305	46.2 (7.3)	53.8 (7.3)	97	504,665	50.0 (5.1)	50.0 (5.1)
Hispanic	70	23,357	35.6 (7.5)	64.4 (7.5)	152	1,323,483	40.8 (3.7)	59.2 (3.7)
AGE								
16-20	312	116,266	23.4 (6.4)	76.6 (6.4)	103	621,685	32.8 (11.1)	67.2 (11.1)
21-25	184	72,815	51.5 (6.3)	48.5 (6.3)	138	915,371	40.3 (4.4)	59.7 (4.4)
26-31	215	95,232	38.5 (4.7)	61.5 (4.7)	160	834,090	41.8 (7.4)	58.2 (7.4)
32-45	252	107,347	48.4 (4.2)	51.6 (4.2)	235	1,187,598	49.0 (4.8)	51.0 (4.8)
46+	99	42,300	51.0 (9.6)	49.0 (9.6)	137	597,733	36.3 (9.8)	63.7 (9.8)
LABOR FORCE STATUS								
Employed	190	85,256	35.8 (4.7)	64.2 (4.7)	280	1,325,635	42.9 (4.2)	57.1 (4.2)
Not Employed	315	120,622	37.7 (4.1)	62.3 (4.1)	260	1,499,193	41.9 (2.7)	58.1 (2.7)
Out of Labor Force	569	233,032	43.2 (5.2)	56.8 (5.2)	240	1,396,184	37.6 (3.7)	62.4 (3.7)

*The numbers in parentheses are estimated standard errors.

There appear to be no significant differences in literacy performance across the three scales between those who indicate they had participated in an ABE program and those who say they had not participated in an ABE program regardless of race/ethnicity, age, or labor force status. The only exception is for Black ES/UI participants. Those who report not having participated in an ABE program obtained lower proficiency levels on the document and quantitative scales than those who had participated. (The proficiency scores associated with participation in an ABE program are given in Appendix E, Table E.3.)

Studying for and receiving a GED. As shown in Table 3.17, among JTPA applicants who were asked if they had ever studied for a GED certificate, 56 percent indicate that they had. This rate of participation generally is the same among racial/ethnic groups, although there is a slightly lower rate for Hispanic applicants than for Black applicants. As might be expected, a significantly lower percentage of those aged 16 to 20 had studied for the GED as compared with other age categories, but there seem to be no significant differences in participation rates among those who report being employed, unemployed, and out of the labor force.

Table 3.17 also shows that of the ES/UI participants who were asked if they had ever studied for a GED, just under half (45.9 percent) responded that they had. As with JTPA applicants, a smaller percentage of Hispanic ES/UI participants (34.2 percent) report studying for the GED compared with White (51.6 percent) and Black (51.7 percent) ES/UI participants. Although there is a tendency for fewer ES/UI

participants aged 46 and older to report studying for a GED, this difference is not statistically significant. There are no significant differences in the participation rates among those who report being employed, unemployed, or out of the labor force.

Table 3.17 **Percentages of JTPA Applicants and ES/UI Participants Who Report Studying for the GED by Race/Ethnicity, Age, and Labor Force Status***

	JTPA				ES/UI			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	843	337,500	55.9 (2.3)	44.1 (2.3)	692	3,694,534	45.9 (4.3)	54.1 (4.3)
RACE/ETHNICITY								
White	545	241,084	54.0 (2.8)	46.0 (2.8)	451	2,004,132	51.6 (4.1)	48.4 (4.1)
Black	191	54,650	59.1 (4.8)	40.9 (4.8)	89	479,037	51.7 (4.1)	48.3 (4.1)
Hispanic	59	19,768	46.2 (4.4)	53.8 (4.4)	132	1,075,716	34.2 (6.9)	65.8 (6.9)
AGE								
16-20	233	86,290	36.4 (6.5)	63.6 (6.5)	72	439,862	46.2 (7.0)	53.8 (7.0)
21-25	141	54,196	66.8 (7.8)	33.2 (7.8)	126	836,125	42.9 (9.8)	57.1 (9.8)
26-31	168	72,913	59.2 (7.6)	40.8 (7.6)	144	726,761	52.1 (8.2)	47.9 (8.2)
32-45	216	88,293	65.6 (5.6)	34.4 (5.6)	215	1,061,612	47.1 (7.1)	52.9 (7.1)
46+	77	32,174	57.1 (7.0)	42.9 (7.0)	128	565,640	38.3 (8.4)	61.7 (8.4)
LABOR FORCE STATUS								
Employed	151	71,503	49.7 (6.7)	50.3 (6.7)	250	1,219,207	50.2 (4.6)	49.8 (4.6)
Not Employed	270	105,107	61.4 (3.6)	38.6 (3.6)	233	1,353,068	50.5 (6.1)	49.5 (6.1)
Out of Labor Force	422	160,889	55.0 (3.9)	45.0 (3.9)	209	1,122,258	35.8 (5.9)	64.2 (5.9)

*The numbers in parentheses are estimated standard errors.

Perhaps more important than the question of who participates in GED programs is the question of who completes them. Table 3.18 shows the percentages of JTPA applicants and ES/UI participants who received a GED as well as those who did not receive a GED. Some 60 percent of those JTPA applicants who report having studied for the GED actually received it. There are no significant differences in the percentages of JTPA applicants who report receiving the GED by racial/ethnic group membership or labor force status. It is interesting to note, however, that less than half of the Hispanic applicants who were asked about studying for the GED indicate they had, yet of those applicants who had studied, about 66 percent report they had received the GED. In addition, with one exception, there are no differences in the percentages of JTPA applicants in the different age categories who report receiving a GED certificate. As might be expected, a lower percentage of those aged 16 to 20 report receiving a GED than any other age group.

As with the JTPA applicants, of those ES/UI participants who participated in a GED program, about 60 percent indicate they had received a GED certificate. In contrast with JTPA applicants, there are significant differences among the racial/ethnic groups: significantly lower percentages of Black and Hispanic ES/UI

Table 3.18 **Percentages of JTPA Applicants and ES/UI Participants Who Report Receiving a GED Certificate by Race/Ethnicity, Age, and Labor Force Status***

	JTPA				ES/UI			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	461	186,424	58.8 (4.9)	41.2 (4.9)	326	1,621,949	61.3 (4.5)	38.7 (4.5)
RACE/ETHNICITY								
White	296	130,773	60.9 (6.0)	39.1 (6.0)	237	1,022,587	70.2 (4.8)	29.8 (4.8)
Black	112	29,554	51.4 (6.1)	48.6 (6.1)	48	247,493	45.7 (12.0)	54.3 (12.0)
Hispanic	28	9,314	65.8 (8.7)	34.2 (8.7)	32	304,977	45.6 (12.4)	54.4 (12.4)
AGE								
16-20	68	30,722	37.8 (7.0)	62.2 (7.0)	26	189,859	27.9 (12.4)	72.1 (12.4)
21-25	92	36,910	54.6 (5.0)	45.4 (5.0)	60	333,215	61.6 (8.1)	38.4 (8.1)
26-31	116	43,252	56.9 (11.5)	43.1 (11.5)	85	379,858	70.5 (8.9)	29.5 (8.9)
32-45	136	55,668	66.8 (7.1)	33.2 (7.1)	108	485,338	66.5 (6.8)	33.5 (6.8)
46+	47	18,364	80.6 (6.4)	19.4 (6.4)	45	218,245	66.0 (11.7)	34.0 (11.7)
LABOR FORCE STATUS								
Employed	89	36,462	63.0 (7.3)	37.0 (7.3)	124	611,328	64.5 (8.8)	35.5 (8.8)
Not Employed	154	61,573	61.8 (7.0)	38.2 (7.0)	119	648,725	62.3 (5.7)	37.7 (5.7)
Out of Labor Force	218	88,390	54.9 (8.7)	45.1 (8.7)	83	361,897	54.3 (10.5)	45.7 (10.5)

*The numbers in parentheses are estimated standard errors.

participants received a certificate as compared with White participants. In addition, with the exception of those aged 16 to 20, there are no differences in the percentages of ES/UI participants receiving a GED by age. Similarly, as with the JTPA applicants, there are no significant differences in the percentages receiving GED certificates among the different categories of labor force status. (The proficiency scores associated with participation in a GED program and receiving the GED are discussed in Chapter 4 and are shown by race/ethnicity and age in Appendix E, Tables E.4 and E.5.)

• Civic Experiences

Voting Practices

Two survey questions asked respondents about their registration status and voting experiences. Table 3.19 shows the distributions of JTPA applicants who report being registered to vote and, of those, individuals who report ever voting in a public election. Of the 2,492 JTPA applicants who responded to this question, well over half (57.8 percent) indicate that they are currently registered to vote. There are no significant differences among the racial/ethnic subgroups with respect to being registered to vote.

Several factors seem to be related to whether or not a person participates in the voting process. Greater percentages of JTPA applicants with a high school diploma and above both registered to vote and voted as compared to those with some high

Table 3.19 **Distributions of JTPA Applicants with Respect to Voting Practices by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	Currently Registered				Ever Voted			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,492	1,093,226	57.8 (2.7)	42.2 (2.7)	2,491	1,091,537	60.1 (3.0)	39.9 (3.0)
RACE/ETHNICITY								
White	1,550	757,194	56.4 (3.6)	43.6 (3.6)	1,551	756,185	61.3 (3.7)	38.7 (3.7)
Black	662	228,695	63.1 (4.1)	36.9 (4.1)	660	227,643	63.1 (3.7)	36.9 (3.7)
Hispanic	158	64,339	56.7 (6.1)	43.3 (6.1)	158	64,711	44.1 (6.5)	55.9 (6.5)
LEVEL OF EDUCATION								
0-8 Years	175	64,402	41.9 (6.1)	58.1 (6.1)	175	64,402	35.4 (6.5)	64.6 (6.5)
9-12 Years	704	302,056	45.8 (3.8)	54.2 (3.8)	703	300,487	43.2 (3.9)	56.8 (3.9)
H.S. Dip. or GED	1,041	480,383	60.1 (3.4)	39.9 (3.4)	1,040	480,358	62.5 (3.1)	37.5 (3.1)
Some Postsecondary	440	183,804	69.2 (2.6)	30.8 (2.6)	441	183,708	80.0 (2.0)	20.0 (2.0)
College Degree	130	61,480	80.7 (7.0)	19.3 (7.0)	130	61,480	90.0 (4.1)	10.0 (4.1)
AGE								
16-20	486	182,843	36.7 (4.5)	63.3 (4.5)	483	180,822	16.3 (2.8)	83.7 (2.8)
21-25	483	213,185	57.8 (4.1)	42.2 (4.1)	484	213,062	45.6 (2.9)	54.4 (2.9)
26-31	505	233,885	57.3 (3.7)	42.7 (3.7)	505	233,885	64.1 (3.7)	35.9 (3.7)
32-45	732	340,085	63.6 (3.1)	36.4 (3.1)	732	339,967	80.5 (2.4)	19.5 (2.4)
46+	257	112,475	78.7 (5.3)	21.3 (5.3)	258	113,047	91.7 (2.0)	8.3 (2.0)
LABOR FORCE STATUS								
Employed	492	241,746	61.3 (5.9)	38.7 (5.9)	491	240,945	63.3 (4.9)	36.7 (4.9)
Not Employed	826	351,792	63.5 (2.1)	36.5 (2.1)	828	352,793	65.3 (2.5)	34.7 (2.5)
Out of Labor Force	1,174	499,688	52.2 (2.9)	47.8 (2.9)	1,172	497,800	54.9 (4.3)	45.1 (4.3)

*The numbers in parentheses are estimated standard errors.

school or less than high school. Among the three highest levels of education, however, the percentage of those with college degrees who voted is greater than the percentage of those with some postsecondary education, which, in turn, is greater than the percentage of those with a high school diploma or GED. Age also seems to be a factor. A significantly greater percentage of those over the age of 45 (78.7 percent) were registered as compared with those aged 32 to 45. For those who are registered to vote, however, the likelihood of voting increases significantly by age. Ninety-two percent of those over age 45 report voting as compared with 81 percent of those aged 32 to 45, 64 percent of those aged 26 to 31, and 46 percent of those aged 21 to 25. There is also a relationship between participating in the voting process and employment status. Over half the applicants report being registered, regardless of employment status; over half of those registered, regardless of employment status, indicate that they had voted. A significantly lower percentage of those out of the labor force report being registered and voting, however, than those who are unemployed.

Table 3.20 shows that of the total ES/UI population, well over half (62.1 percent) report being registered, and 64 percent of those registered report that they had voted. Among the racial/ethnic populations, however, there are significant differences both for being registered and then for voting. Seventy-three percent of the Black participants report being registered as compared with 66 percent of the White participants and 46 percent of the Hispanic participants. Of those Hispanic participants registered, only 37 percent report having voted, as compared with 68 percent and 73 percent of the Black and White participants, respectively. Of the factors shown in Table 3.20, level of education and age seem to be related to both registering and then voting. The higher the level of education, the greater the percentages of those who were registered to vote and of those who voted. A significantly greater percentage of those over the age of 45 were registered as compared with the other age groups. Of those registered, however, those 46 and older (87.6 percent), those aged 32 to 45 (74.9 percent), and those aged 26 to 31 (62.7 percent) are more likely to vote than those in the 21- to 25-year-old age group (45.9 percent). With respect to employment status, there are no significant differences among the three groups in their being registered to vote or having voted.

Table 3.20 **Distributions of ES/UI Participants with Respect to Voting Practices by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	Currently Registered				Ever Voted			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,271	18,876,238	62.1 (1.6)	37.9 (1.6)	3,266	18,822,927	63.6 (2.9)	36.4 (2.9)
RACE/ETHNICITY								
White	2,392	11,877,813	66.4 (2.0)	33.6 (2.0)	2,389	11,863,284	73.3 (2.2)	26.7 (2.2)
Black	375	2,189,197	73.2 (2.2)	26.8 (2.2)	375	2,189,197	67.5 (2.5)	32.5 (2.5)
Hispanic	381	3,804,504	46.1 (2.8)	53.9 (2.8)	381	3,771,409	37.0 (6.2)	63.0 (6.2)
LEVEL OF EDUCATION								
0-8 Years	119	509,013	28.6 (10.6)	71.4 (10.6)	119	509,013	32.5 (12.2)	67.5 (12.2)
9-12 Years	500	2,941,253	51.2 (1.8)	48.8 (1.8)	497	2,908,902	38.8 (3.5)	61.2 (3.5)
H.S. Dip. or GED	1,277	6,651,252	57.8 (2.4)	42.2 (2.4)	1,275	6,646,500	58.6 (2.1)	41.4 (2.1)
Some Postsecondary	859	5,150,723	67.6 (2.3)	32.4 (2.3)	860	5,153,143	72.8 (3.4)	27.2 (3.4)
College Degree	513	3,601,479	75.5 (2.2)	24.5 (2.2)	512	3,582,852	84.5 (2.3)	15.5 (2.3)
AGE								
16-20	314	1,845,836	41.5 (7.0)	58.5 (7.0)	311	1,813,484	19.4 (3.7)	80.6 (3.7)
21-25	614	3,414,423	60.1 (2.8)	39.9 (2.8)	615	3,416,843	45.9 (2.4)	54.1 (2.4)
26-31	725	4,128,849	58.4 (2.3)	41.6 (2.3)	725	4,142,468	62.7 (2.2)	37.3 (2.2)
32-45	1,058	6,094,447	63.6 (2.3)	36.4 (2.3)	1,058	6,105,371	74.9 (3.1)	25.1 (3.1)
46+	546	3,308,221	77.6 (2.8)	22.4 (2.8)	544	3,264,469	87.6 (2.0)	12.4 (2.0)
LABOR FORCE STATUS								
Employed	1,299	7,164,575	64.2 (1.7)	35.8 (1.7)	1,295	7,106,800	67.6 (3.4)	32.4 (3.4)
Not Employed	1,126	6,394,933	63.1 (1.9)	36.9 (1.9)	1,123	6,382,242	66.0 (2.8)	34.0 (2.8)
Out of Labor Force	846	5,316,729	58.0 (2.9)	42.0 (2.9)	848	5,333,885	55.3 (4.9)	44.7 (4.9)

*The numbers in parentheses are estimated standard errors.

Keeping Abreast of Public Affairs

One activity that is related to civic and political behavior is following government and public affairs. Table 3.21 shows the distributions of JTPA applicants who report following public affairs most of the time, some of the time, only now and then, or hardly at all. As can be seen from the table, over 70 percent of the total population report that they follow public affairs most or some of the time. This figure basically holds true for racial/ethnic groups. There does seem to be a relationship, however, between keeping up to date most of the time and both level of education and age. The higher the education level, the more likely one is to follow current events. Greater percentages of those with a college degree or some postsecondary education report that they keep up to date most of the time as compared with those with a high school diploma or GED; in turn, a greater percentage of that group report that they follow public affairs as compared with those with less than a high school diploma or GED. Also, as people get older, they tend to keep more up-to-date. The percentage of JTPA applicants who report keeping abreast of public affairs most of the time increases from 19 percent for those who are 16 to 20 years of age to just over 50

Table 3.21 **Distributions of JTPA Applicants and the Extent to Which They Report Keeping Abreast of Public Affairs by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Most of the time	Some of the Time	Only Now and Then	Hardly at All
TOTAL	2,496	1,094,391	35.5 (1.4)	37.2 (1.3)	16.1 (1.0)	11.1 (1.3)
RACE/ETHNICITY						
White	1,555	758,769	35.7 (2.0)	37.5 (1.3)	15.5 (1.4)	11.4 (1.5)
Black	660	227,711	34.2 (1.3)	37.3 (3.8)	18.2 (3.5)	10.4 (1.7)
Hispanic	159	64,912	39.7 (5.3)	29.0 (5.6)	19.0 (3.4)	12.3 (3.2)
LEVEL OF EDUCATION						
0-8 Years	176	64,975	26.6 (6.5)	31.1 (4.6)	23.9 (6.8)	18.3 (3.5)
9-12 Years	705	302,247	23.4 (3.2)	39.9 (4.0)	19.0 (2.2)	17.7 (2.9)
H.S. Dip. or GED	1,042	480,879	37.8 (2.5)	37.4 (2.3)	15.5 (1.7)	9.3 (1.9)
Some Postsecondary	441	183,708	46.5 (3.6)	33.6 (4.2)	13.8 (2.8)	6.1 (2.1)
College Degree	130	61,480	51.9 (4.7)	40.5 (5.9)	6.3 (2.8)	1.2 (1.1)
AGE						
16-20	488	183,607	19.0 (4.8)	40.0 (3.7)	21.8 (2.5)	19.2 (3.3)
21-25	484	213,062	28.5 (3.6)	38.4 (2.6)	18.3 (2.7)	14.7 (3.1)
26-31	504	233,703	36.2 (2.7)	36.2 (4.7)	16.7 (2.6)	10.8 (3.0)
32-45	733	340,218	43.4 (2.0)	36.7 (2.1)	13.7 (1.6)	6.2 (0.8)
46+	258	113,047	52.7 (4.3)	32.6 (4.6)	8.5 (2.4)	6.1 (2.1)
LABOR FORCE STATUS						
Employed	491	240,945	42.2 (3.0)	34.7 (2.6)	14.5 (1.6)	8.6 (1.9)
Not Employed	829	353,043	36.4 (2.7)	39.4 (2.6)	14.9 (1.9)	9.2 (1.8)
Out of Labor Force	1,176	500,403	31.6 (2.4)	36.9 (2.1)	17.8 (1.0)	13.7 (2.3)

*The numbers in parentheses are estimated standard errors.

percent for those who are 46 years of age and older. While there is no difference between JTPA applicants who report being not employed and those out of the labor force, a significantly larger percentage of employed JTPA applicants report keeping abreast of public affairs most of the time than do those applicants who are out of the labor force. While there are no significant differences among groups of JTPA applicants who follow public affairs some of the time, larger percentages of younger and/or less well educated applicants report keeping abreast of public affairs only now and then or hardly at all.

Table 3.22 shows similar distributions of the answers of ES/UI program participants to the same question about following public affairs. As with the JTPA population, over 70 percent of the total ES/UI population report following public affairs most or some of the time. With the ES/UI population, race/ethnicity, level of education, and age seem to be associated with keeping abreast of public affairs most of the time. About 48 percent of the White participants report keeping up-to-date most of the time; however, the rate is about 36 percent for Black participants and 34 percent for Hispanic participants. While the difference between White and Black

Table 3.22 **Distributions of ES/UI Participants and the Extent to Which They Report Keeping Abreast of Public Affairs by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Most of the Time	Some of the Time	Only Now and Then	Hardly at All
TOTAL	3,274	18,895,813	44.2 (2.1)	32.9 (1.0)	14.2 (1.2)	8.7 (1.4)
RACE/ETHNICITY						
White	2,393	11,893,307	48.3 (1.7)	32.0 (1.3)	13.6 (1.9)	6.0 (0.5)
Black	375	2,189,197	36.3 (4.5)	38.4 (2.2)	15.8 (1.2)	9.4 (4.0)
Hispanic	384	3,824,079	33.9 (8.9)	35.6 (5.0)	14.7 (1.3)	15.8 (4.9)
LEVEL OF EDUCATION						
0-8 Years	120	511,432	26.5 (5.0)	25.7 (5.6)	20.8 (6.3)	27.0 (3.7)
9-12 Years	500	2,941,253	26.1 (1.9)	35.8 (2.3)	21.9 (2.6)	16.2 (2.7)
H.S. Dip. or GED	1,279	6,681,481	38.7 (2.5)	37.5 (1.7)	13.2 (2.1)	10.6 (1.8)
Some Postsecondary	860	5,153,143	48.7 (2.6)	31.9 (2.2)	14.7 (1.3)	4.8 (0.7)
College Degree	512	3,585,985	65.1 (2.6)	24.7 (1.7)	8.0 (1.7)	2.1 (1.2)
AGE						
16-20	314	1,845,836	27.9 (4.3)	34.4 (5.4)	22.8 (2.7)	14.9 (2.6)
21-25	615	3,416,843	30.5 (3.0)	41.5 (2.0)	16.9 (1.5)	11.1 (2.6)
26-31	727	4,146,004	40.8 (3.1)	32.5 (2.6)	15.9 (2.0)	10.7 (1.6)
32-45	1,059	6,109,941	45.6 (2.4)	33.3 (1.7)	13.6 (2.1)	7.5 (1.4)
46+	545	3,292,727	68.9 (2.8)	22.9 (2.1)	5.6 (1.3)	2.6 (1.2)
LABOR FORCE STATUS						
Employed	1,299	7,164,575	44.4 (2.4)	34.3 (2.3)	14.2 (1.8)	7.1 (1.0)
Not Employed	1,127	6,410,428	44.8 (3.8)	30.6 (2.0)	14.4 (2.5)	10.2 (3.0)
Out of Labor Force	848	5,320,810	43.2 (3.1)	33.9 (3.1)	13.9 (1.7)	9.1 (1.9)

*The numbers in parentheses are estimated standard errors.

participants is statistically significant, the differences between Hispanic participants and White and Black participants are not statistically significant. As with the JTPA population, the higher the level of education and the older the respondent, the greater the percentages of those who report keeping abreast of public affairs frequently. The percentages increase from about 26 for those who report less than a high school diploma or GED to 65 percent for those with college degrees. In contrast to JTPA, however, a greater percentage of those with a college degree keep abreast of public affairs most of the time as compared with those with some postsecondary education. By age categories, the percentages increase from about 28 for 16- to 20-year-old participants to nearly 70 for those 46 years of age and older. Among ES/UI participants, employment status does not seem to be related to keeping abreast of public affairs.

• *Self-Perceptions about Literacy Skills*

Adequacy of Literacy Skills

JTPA applicants and ES/UI participants who indicate they had worked were asked whether they felt their reading, writing, and mathematics skills were good enough for their jobs. Table 3.23 shows percentages of "yes" and "no" responses in each of the three skill areas for the JTPA population, that is, of those who feel that their skills were adequate for their jobs ("yes" column) and of those who feel that their skills were not adequate ("no" column). With few exceptions, at least 90 percent of the applicants report that they thought their skills were adequate in each of the three areas. As might be expected, the exceptions with respect to education level are those with zero to eight years of education for all three skill areas as well as those with nine to 12 years of education for writing and mathematics. Surprisingly, however, more than 75 percent of these groups indicated that their skill levels were adequate. It would follow that significantly greater percentages of applicants with less than a high school diploma or GED indicate that both their writing and mathematics skills were inadequate for their job, as compared with those who attained a high school diploma or GED and above. The only significant difference with respect to age is that the percentage of applicants over the age of 45 who feel their writing skills are adequate is lower as compared with 26- through 45-year-olds. In addition, a greater percentage of those out of the work force feel that their mathematics skills are inadequate when compared with applicants who are employed.

As shown in Table 3.24, with few exceptions, at least 90 percent of the ES/UI participants report that their reading, writing, and mathematics skills are adequate for their job. For the ES/UI population, the percentages for the same groups and skill areas as in the JTPA population fall below 90 percent — that is, those with zero to eight years of education for all three skill areas and those with nine to 12 years of

Table 3.23 Distributions of JTPA Applicants' Self-Perceptions About Their Skills by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	Reading				Writing			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,157	*974,973	96.2 (0.7)	3.1 (0.6)	2,158	973,915	93.0 (0.8)	5.5 (0.8)
RACE/ETHNICITY								
White	1,363	690,623	96.5 (0.8)	2.7 (0.6)	1,364	691,031	93.6 (0.7)	4.8 (0.8)
Black	541	185,636	96.1 (1.6)	3.5 (1.6)	540	184,043	93.5 (2.0)	5.9 (2.1)
Hispanic	146	60,118	92.3 (2.6)	7.3 (2.5)	147	60,246	87.3 (2.8)	9.2 (2.8)
LEVEL OF EDUCATION								
0-8 Years	134	52,976	84.4 (5.1)	14.4 (5.1)	135	52,311	77.4 (5.7)	16.1 (6.2)
9-12 Years	539	238,209	93.8 (1.1)	5.6 (1.1)	540	238,366	88.8 (2.1)	8.4 (1.6)
H.S. Dip. or GED	942	444,698	97.7 (0.6)	1.8 (0.5)	940	443,859	96.0 (0.7)	3.2 (0.7)
Some Postsecondary	414	177,347	98.9 (1.1)	0.0 (0.0)	415	177,636	95.3 (1.4)	4.3 (1.4)
College Degree	126	60,640	97.4 (1.5)	1.6 (1.0)	126	60,640	94.6 (3.6)	5.4 (3.6)
AGE								
16-20	287	113,288	96.6 (1.5)	2.8 (1.4)	287	112,501	91.3 (3.1)	4.1 (1.6)
21-25	428	191,866	96.2 (1.4)	2.0 (0.9)	428	191,866	93.1 (1.7)	5.3 (1.4)
26-31	468	219,420	96.1 (1.4)	3.7 (1.4)	467	219,278	95.6 (1.3)	3.9 (1.4)
32-45	713	333,195	97.3 (0.8)	2.2 (0.7)	713	332,985	93.6 (1.2)	5.5 (1.3)
46+	248	111,114	93.0 (2.8)	7.0 (2.8)	250	111,197	88.3 (2.1)	10.2 (2.2)
LABOR FORCE STATUS								
Employed	440	221,959	97.2 (0.9)	2.4 (0.8)	440	221,959	93.0 (1.6)	5.7 (1.8)
Not Employed	770	336,083	97.1 (0.7)	1.7 (0.5)	771	336,656	93.6 (1.4)	5.3 (1.3)
Out of Labor Force	947	416,931	95.0 (1.2)	4.7 (1.1)	947	415,301	92.6 (0.8)	5.5 (0.8)

	Mathematics			
	n	Weighted N	Yes	No
TOTAL	2,158	973,981	90.3 (0.9)	8.1 (0.9)
RACE/ETHNICITY				
White	1,365	691,211	89.6 (1.2)	8.4 (1.2)
Black	539	183,929	92.3 (2.1)	7.1 (2.2)
Hispanic	147	60,246	92.4 (2.6)	6.0 (2.2)
LEVEL OF EDUCATION				
0-8 Years	135	52,311	75.8 (5.4)	23.4 (4.9)
9-12 Years	539	237,935	85.7 (2.0)	11.5 (1.9)
H.S. Dip. or GED	941	444,356	92.8 (0.9)	6.1 (0.8)
Some Postsecondary	415	177,636	94.1 (1.7)	4.6 (1.5)
College Degree	126	60,640	93.3 (2.7)	5.5 (2.9)
AGE				
16-20	287	112,501	87.6 (3.4)	10.1 (3.4)
21-25	428	191,866	91.3 (2.1)	6.7 (2.0)
26-31	467	218,988	90.3 (2.3)	7.1 (1.9)
32-45	713	333,340	90.9 (1.4)	8.2 (1.1)
46+	250	111,197	89.7 (2.1)	9.9 (2.1)
LABOR FORCE STATUS				
Employed	438	221,370	94.2 (1.4)	4.7 (1.4)
Not Employed	770	336,542	91.1 (1.5)	7.2 (1.2)
Out of Labor Force	950	416,069	87.6 (1.6)	10.6 (1.5)

*The numbers in parentheses are estimated standard errors.

Table 3.24 Distributions of ES/UI Participants' Self-Perceptions About Their Skills by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	Reading				Writing			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,141	18,090,159	95.6 (0.9)	4.0 (0.8)	3,140	18,065,145	90.6 (0.8)	8.2 (0.7)
RACE/ETHNICITY								
White	2,309	11,549,283	97.0 (0.5)	2.7 (0.4)	2,309	11,539,004	92.1 (0.8)	6.9 (0.8)
Black	351	2,063,222	96.5 (1.6)	3.5 (1.6)	351	2,063,222	93.8 (1.2)	5.9 (1.1)
Hispanic	367	3,562,496	90.7 (3.7)	8.1 (3.0)	366	3,547,761	85.6 (5.9)	11.8 (4.7)
LEVEL OF EDUCATION								
0-8 Years	117	503,275	62.7 (9.8)	31.3 (9.2)	117	503,275	54.7 (4.5)	40.2 (2.6)
9-12 Years	461	2,598,657	92.7 (2.4)	6.8 (2.4)	461	2,598,657	86.9 (3.4)	12.1 (3.4)
H.S. Dip. or GED	1,231	6,451,727	96.1 (0.8)	3.8 (0.8)	1,232	6,441,438	91.1 (1.5)	8.1 (1.4)
Some Postsecondary	825	4,950,425	98.1 (0.7)	1.2 (0.6)	823	4,935,699	93.9 (1.3)	5.0 (1.0)
College Degree	504	3,563,557	97.7 (1.1)	2.3 (1.1)	504	3,563,557	93.1 (2.0)	5.8 (2.3)
AGE								
16-20	247	1,377,248	99.6 (0.1)	0.2 (0.2)	247	1,377,248	94.7 (1.2)	4.6 (1.3)
21-25	583	3,255,300	95.9 (1.8)	3.5 (1.7)	582	3,256,068	93.5 (1.5)	5.9 (1.4)
26-31	716	4,121,137	95.5 (1.0)	4.4 (1.0)	715	4,106,402	90.9 (1.4)	8.4 (1.6)
32-45	1,044	6,005,148	95.3 (1.6)	4.4 (1.7)	1,045	6,007,371	87.7 (1.4)	10.5 (1.5)
46+	539	3,265,128	94.4 (1.6)	4.7 (1.4)	539	3,251,857	90.7 (1.7)	7.7 (1.2)
LABOR FORCE STATUS								
Employed	1,262	6,985,495	97.2 (0.9)	2.[illegible] (0.9)	1,264	6,989,941	91.5 (1.2)	7.1 (1.2)
Not Employed	1,099	6,260,871	95.6 (1.1)	4.3 (1.1)	1,097	6,244,643	90.2 (1.2)	9.1 (1.0)
Out of Labor Force	780	4,843,793	93.2 (1.4)	5.5 (1.5)	779	4,830,560	89.6 (1.7)	8.8 (1.4)

	Mathematics			
	n	Weighted N	Yes	No
TOTAL	3,139	18,077,173	91.9 (0.8)	7.1 (0.9)
RACE/ETHNICITY				
White	2,309	11,545,439	92.9 (0.8)	6.2 (0.9)
Black	351	2,063,222	93.4 (1.7)	5.4 (1.5)
Hispanic	366	3,557,926	87.7 (3.9)	10.9 (3.0)
LEVEL OF EDUCATION				
0-8 Years	117	503,275	66.7 (5.9)	27.4 (5.4)
9-12 Years	461	2,598,657	83.5 (3.5)	15.2 (3.5)
H.S. Dip. or GED	1,230	6,443,579	92.1 (1.5)	7.0 (1.5)
Some Postsecondary	825	4,950,158	95.2 (0.9)	3.6 (1.2)
College Degree	503	3,556,987	96.7 (1.0)	3.3 (1.0)
AGE				
16-20	247	1,377,248	92.8 (2.5)	3.8 (1.9)
21-25	584	3,259,304	92.9 (2.4)	6.7 (2.4)
26-31	715	4,116,566	92.2 (1.2)	7.6 (1.2)
32-45	1,041	5,990,505	90.8 (1.5)	8.1 (1.4)
46+	540	3,267,351	92.2 (2.5)	6.4 (2.1)
LABOR FORCE STATUS				
Employed	1,262	6,981,098	93.6 (0.9)	5.7 (0.8)
Not Employed	1,097	6,252,549	91.9 (1.1)	7.5 (1.1)
Out of Labor Force	780	4,843,526	89.6 (1.4)	8.5 (1.8)

*The numbers in parentheses are estimated standard errors.

education for writing and mathematics. In contrast to the JTPA population, however, less than 75 percent of those with zero to eight years of education feel that their skills are adequate in all three skill areas.

Quality of Job with Respect to Additional Training

For this survey, perhaps more important than the perceived adequacy of skills for one's job is whether or not respondents feel they could get a job or a better job if they received additional training in reading or writing and in mathematics. As shown in Table 3.25, 67 percent of the JTPA applicants feel they could get a (better) job if they received additional training in reading or writing, and 79 percent feel that way with respect to additional training in mathematics. It is apparent from the table that, when compared with White applicants, significantly more Black and Hispanic applicants feel they could get a (better) job if they received training in both reading or writing and in mathematics. Significant differences also occur with respect to level of education. When compared with those who earned a high school diploma or a GED,

Table 3.25 **Distributions of JTPA Applicants Regarding Relationship Between (Better) Job and Training by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	Reading or Writing English				Mathematics			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,479	1,091,984	66.6 (2.2)	33.4 (2.2)	2,475	1,089,072	79.3 (2.0)	20.7 (2.0)
RACE/ETHNICITY								
White	1,542	754,963	60.1 (2.0)	39.9 (2.0)	1,538	752,296	75.4 (2.1)	24.6 (2.1)
Black	661	230,133	82.0 (4.3)	18.0 (4.3)	659	229,460	89.2 (2.1)	10.8 (2.1)
Hispanic	156	64,305	81.6 (4.2)	18.4 (4.2)	158	64,731	83.8 (3.2)	16.2 (3.2)
LEVEL OF EDUCATION								
0-8 Years	175	64,817	86.5 (2.6)	13.5 (2.6)	175	64,817	85.7 (4.1)	14.3 (4.1)
9-12 Years	696	299,399	79.2 (3.0)	20.8 (3.0)	696	297,444	86.8 (2.6)	13.2 (2.6)
H.S. Dip. or GED	1,038	481,049	61.0 (3.6)	39.0 (3.6)	1,034	480,737	78.4 (2.8)	21.6 (2.8)
Some Postsecondary	440	184,137	63.3 (2.5)	36.7 (2.5)	441	184,318	80.6 (2.8)	19.4 (2.8)
College Degree	130	61,480	37.2 (8.2)	62.8 (8.2)	127	60,654	38.8 (9.3)	61.2 (9.3)
AGE								
16-20	485	184,343	74.4 (3.4)	25.6 (3.4)	485	184,837	82.2 (1.8)	17.8 (1.8)
21-25	481	213,144	67.6 (2.7)	32.4 (2.7)	479	211,444	80.0 (3.2)	20.0 (3.2)
26-31	498	230,405	62.4 (3.4)	37.6 (3.4)	499	228,447	80.6 (2.8)	19.4 (2.8)
32-45	730	339,767	66.4 (4.1)	33.6 (4.1)	726	338,851	78.2 (3.9)	21.8 (3.9)
46+	257	113,723	59.5 (2.8)	40.5 (2.8)	258	114,893	73.6 (2.7)	26.4 (2.7)
LABOR FORCE STATUS								
Employed	486	238,507	65.1 (3.5)	34.9 (3.5)	489	240,183	79.8 (2.8)	20.2 (2.8)
Not Employed	826	352,518	62.1 (3.0)	37.9 (3.0)	822	351,728	72.8 (3.0)	27.2 (3.0)
Out of Labor Force	1,167	500,959	70.5 (3.0)	29.5 (3.0)	1,164	497,161	83.7 (2.0)	16.3 (2.0)

*The numbers in parentheses are estimated standard errors.

significantly larger percentages of applicants with less than or some high school education feel they could get a (better) job if they received additional training in reading or writing; and, in turn, the percentages of those with a high school diploma or GED and with some postsecondary education are significantly higher than the percentage for college graduates. These trends are also evident with respect to perceptions about additional training in mathematics, except that the difference between those with less than high school and those with a high school diploma or GED is not significant. When labor force status is considered with respect to both reading or writing and mathematics skills, a significantly greater percentage of those out of the labor force than those unemployed feel that they could get a (better) job if they received additional training.

Of particular note when considering the kinds of training to implement for DOL clients is that for the total JTPA population a larger percentage feel they could get a (better) job if they received additional training in mathematics. This is the same regardless of age or labor force status. There are, however, no significant differences with respect to the two kinds of training for Black and Hispanic JTPA applicants and for those at the extreme categories of educational attainment — those with zero to eight years of education and those reporting a college degree.

When compared with the JTPA population, a lower percentage of ES/UI participants feel they would get a (better) job if they received additional training in reading or writing (57.3 percent) and in mathematics (69.4 percent), as shown in Table 3.26. As with the JTPA applicants, a significantly larger percentage of Black and Hispanic ES/UI participants than White participants feel that they could get a (better) job if they received additional training in both reading or writing and in mathematics. When participants are compared by level of education, the percentages of participants who feel that training in reading or writing would be a help decrease significantly as the level of education increases. With respect to additional mathematics training, there is not the category-by-category decrease there is with reading or writing; however, significantly more participants with less than or some high school feel that such training would help than do those with a high school diploma or GED. In turn, a significantly greater percentage of those with a high school diploma or GED and some postsecondary than college graduates feel that additional mathematics training would assist them in getting a (better) job. When employment status is considered for the ES/UI population, there are not the significant differences between those who are out of the labor force and those who are unemployed that are evident for the JTPA population.

Consistent with the trend for JTPA, a significantly larger percentage of the total ES/UI population report that additional mathematics training would assist them in getting a (better) job (69.4 percent), compared with additional training in reading or writing (57.3 percent). In addition, while a larger percentage of White and Black ES/UI participants indicate that mathematics training would be helpful, the difference is not

Table 3.26 **Distributions of ES/UI Participants Regarding Relationship Between (Better) Job and Training by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	Reading or Writing English				Mathematics			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,253	18,733,323	57.3 (2.9)	42.7 (2.9)	3,251	18,727,928	69.4 (2.5)	30.6 (2.5)
RACE/ETHNICITY								
White	2,382	11,848,101	44.3 (2.9)	55.7 (2.9)	2,381	11,846,455	60.5 (2.5)	39.5 (2.5)
Black	373	2,183,531	76.3 (2.1)	23.7 (2.1)	373	2,183,531	82.6 (2.2)	17.4 (2.2)
Hispanic	377	3,729,256	83.0 (5.0)	17.0 (5.0)	377	3,730,078	89.7 (4.8)	10.3 (4.8)
LEVEL OF EDUCATION								
0-8 Years	119	509,013	92.8 (3.7)	7.2 (3.7)	119	509,013	87.2 (7.0)	12.8 (7.0)
9-12 Years	495	2,859,040	75.0 (3.7)	25.0 (3.7)	497	2,865,877	83.5 (3.3)	16.5 (3.3)
H.S. Dip. or GED	1,269	6,642,973	61.7 (2.3)	38.3 (2.3)	1,267	6,652,693	75.1 (1.9)	24.9 (1.9)
Some Postsecondary	855	5,103,388	52.8 (2.4)	47.2 (2.4)	855	5,103,868	69.6 (2.8)	30.4 (2.8)
College Degree	512	3,596,390	36.3 (5.2)	63.7 (5.2)	510	3,573,958	44.4 (2.7)	55.6 (2.7)
AGE								
16-20	310	1,767,895	68.4 (5.9)	31.6 (5.9)	311	1,770,460	84.2 (2.6)	15.8 (2.6)
21-25	614	3,403,138	69.6 (5.1)	30.4 (5.1)	614	3,406,135	80.6 (4.1)	19.4 (4.1)
26-31	720	4,116,753	56.7 (3.4)	43.3 (3.4)	721	4,132,507	71.4 (3.1)	28.6 (3.1)
32-45	1,054	6,077,483	52.8 (2.6)	47.2 (2.6)	1,050	6,048,818	65.9 (2.5)	34.1 (2.5)
46+	541	3,283,592	46.5 (3.6)	53.5 (3.6)	542	3,287,864	53.3 (3.1)	46.7 (3.1)
LABOR FORCE STATUS								
Employed	1,293	7,108,380	53.1 (3.2)	46.9 (3.2)	1,290	7,094,265	66.3 (2.8)	33.7 (2.8)
Not Employed	1,117	6,371,874	56.0 (2.0)	44.0 (2.0)	1,118	6,378,640	69.2 (2.0)	30.8 (2.0)
Out of Labor Force	843	5,253,068	64.4 (5.1)	35.6 (5.1)	843	5,255,022	73.6 (3.8)	26.4 (3.8)

*The numbers in parentheses are estimated standard errors.

significant among Hispanic participants. Similarly, a larger percentage of those who report a high school diploma or GED and some postsecondary education also indicate that mathematics would be helpful, as do a larger percentage of those ES/UI participants who are employed or unemployed. Again, the difference is not significant for those who were out of the labor force.

Help Received for Literacy Activities

Another indication of whether people feel their literacy skills are adequate is the frequency with which others help them with various literacy activities. Respondents were asked how frequently family members or friends help them with filling out forms, explaining articles or other types of written information, dealing with agencies, companies, medical personnel, etc., and writing notes and letters. As can be seen in Table 3.27, over 80 percent of the total JTPA population indicate they never receive help or receive help only once or twice a year for each of the four activities. This rate remains similar regardless of race/ethnicity, with the percentages ranging from 87 to 91, 81 to 86, and 81 to 87 for White, Black, and Hispanic applicants, respectively.

Some differences in the rates do occur when the JTPA population is broken down by level of education and age. For all the activities except writing letters, greater percentages of those with less than a high school education and those aged 16 to 20 receive help more often. (See Appendix E, Table E.8, for distributions of JTPA applicants by race/ethnicity, level of education, age, and labor force status.)

Table 3.27 Distributions of JTPA Applicants Reporting How Often They Receive Help with Literacy Activities*

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
Filling Out Forms	2,483	1,092,157	1.9 (0.5)	4.5 (0.8)	7.1 (0.5)	24.4 (1.4)	62.1 (1.6)
Reading Written Info.	2,479	1,088,414	4.2 (0.6)	5.5 (0.7)	4.3 (0.4)	12.7 (0.9)	73.3 (1.4)
Dealing with Agencies	2,478	1,088,426	2.5 (0.5)	2.7 (0.5)	8.3 (0.9)	26.3 (1.1)	60.3 (1.4)
Writing Letters	2,480	1,089,551	3.1 (0.5)	4.1 (0.6)	3.2 (0.5)	10.3 (0.7)	79.2 (1.1)

*The numbers in parentheses are estimated standard errors.

Generally, about 90 percent of the ES/UI participants report that they never receive help or receive help only once or twice a year for each of the four activities, as can be seen in Table 3.28. Over 90 percent of the White participants, 84 to 90 percent of the Black participants, and 83 to 88 percent of the Hispanic participants indicate that they receive infrequent or no help for each of the four activities. A greater percentage of those with less than a high school education receive help more frequently as compared with those with the other levels of education for all four of the activities. As with the JTPA population, a greater percentage of those aged 16 to 20 receive help more often as compared with the other age groups for all activities except letter writing. For both the ES/UI and JTPA populations, there are no major differences by labor force status. (See Appendix E, Table E.9, for distributions of ES/UI participants by race/ethnicity, level of education, age, and labor force status).

Table 3.28 Distributions of ES/UI Participants Reporting How Often They Receive Help with Literacy Activities*

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
Filling Out Forms	3,263	18,789,008	1.9 (0.3)	2.6 (0.5)	4.3 (0.8)	19.3 (1.1)	71.9 (1.2)
Reading Written Info.	3,261	18,794,753	2.6 (0.6)	3.6 (0.5)	2.9 (0.3)	10.9 (0.7)	80.0 (1.3)
Dealing with Agencies	3,263	18,797,718	1.1 (0.3)	3.3 (0.7)	6.4 (0.9)	28.2 (2.3)	61.0 (2.1)
Writing Letters	3,259	18,799,904	1.5 (0.5)	3.1 (0.5)	5.3 (0.5)	8.4 (0.7)	81.7 (1.0)

*The numbers in parentheses are estimated standard errors.

• Current Literacy Activities

Reading Activities on the Job

The literacy activities respondents engage in both on the job and for personal use are of interest with respect to serving the client populations for JTPA and ES/UI. One question that addresses this issue asked respondents how often they read or used information from four different types of literacy materials on the job — reports or journal articles, forms, letters, and diagrams or schematics. As shown in Table 3.29, the most frequently used material on the job by JTPA applicants was forms, with 47 percent of the applicants reporting that they use forms every day or a few times a week. About 25 percent of the applicants report using each of the other types of materials with that frequency.

Table 3.29 Distributions of JTPA Applicants Reporting How Often They Use Literacy Materials on the Job*

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
Reports/Journal Articles	2,146	957,958	18.0 (1.1)	10.4 (0.9)	7.9 (0.9)	9.7 (1.4)	54.1 (2.0)
Forms	2,143	957,489	37.9 (2.2)	9.3 (1.0)	8.4 (0.9)	8.7 (0.9)	35.6 (1.9)
Letters	2,143	955,657	13.4 (1.4)	11.8 (1.6)	8.1 (0.9)	11.4 (1.7)	55.3 (2.2)
Diagrams/Schematics	2,146	963,717	17.7 (1.3)	7.5 (0.8)	6.6 (0.8)	10.4 (1.0)	57.7 (1.6)

*The numbers in parentheses are estimated standard errors.

A greater percentage of the ES/UI population report using the four types of materials every day or a few times a week as compared with the JTPA population. As can be seen in Table 3.30, the ES/UI participants also used forms more frequently than other materials, with 65 percent reporting that they use forms every day or a few times a week. This frequency is also reported by 45 percent of the participants for reports, by 40 percent for letters, and by 33 percent for diagrams. (See Appendix E, Tables E.10 and E.11, for distributions of JTPA applicants and ES/UI participants by race/ethnicity, level of education, age, and labor force status.)

Table 3.30 Distributions of ES/UI Participants Reporting How Often They Use Literacy Materials on the Job*

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
Reports/Journal Articles	3,138	18,070,265	31.9 (1.5)	13.7 (0.8)	8.5 (0.4)	11.5 (0.9)	34.5 (1.7)
Forms	3,129	18,014,144	55.5 (2.8)	9.6 (0.8)	6.5 (1.0)	6.6 (0.7)	21.9 (1.8)
Letters	3,128	17,999,850	25.9 (1.8)	14.7 (0.9)	8.3 (0.5)	13.2 (1.1)	37.9 (2.2)
Diagrams/Schematics	3,127	18,030,026	23.0 (2.6)	9.9 (0.9)	8.2 (0.9)	11.2 (0.8)	47.7 (2.6)

*The numbers in parentheses are estimated standard errors.

Writing Activities on the Job

Respondents were asked how often they write or fill out memos or business letters, reports, forms, and bills or invoices on the job. As can be seen in Table 3.31, the greatest percentage of JTPA applicants report that they fill out forms (44.1 percent) every day or a few times a week, followed by reports (29.7 percent), memos (21.3 percent), and bills (20.4 percent).

Table 3.31 Distributions of JTPA Applicants Reporting How Often They Engage in Writing on the Job*

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
Memos/Letters	2,144	955,459	14.3 (1.0)	7.0 (0.9)	4.1 (1.0)	8.2 (0.7)	66.5 (1.9)
Reports	2,137	951,561	23.6 (1.5)	6.1 (1.1)	6.8 (0.5)	8.0 (1.0)	55.5 (1.7)
Forms	2,141	956,090	36.8 (2.1)	7.3 (0.8)	6.6 (0.8)	8.2 (0.7)	41.1 (2.2)
Bills/Invoices	2,141	954,724	14.4 (0.8)	6.0 (0.6)	4.6 (0.7)	8.1 (1.2)	66.9 (1.6)

*The numbers in parentheses are estimated standard errors.

A greater percentage of ES/UI participants than JTPA applicants report they write up or fill out the four kinds of documents frequently. As shown in Table 3.32, 58 percent of the ES/UI participants report filling out forms every day or a few times a week, followed by 42 percent for reports, 38 percent for memos, and 32 percent for bills. (See Appendix E, Tables E.12 and E.13, for distributions of JTPA applicants and ES/UI participants by race/ethnicity, level of education, age, and labor force status.)

Table 3.32 Distributions of ES/UI Participants Reporting How Often They Engage in Writing on the Job*

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
Memos/Letters	3,137	18,033,334	25.0 (1.9)	12.5 (0.9)	7.4 (0.7)	9.6 (0.8)	45.6 (2.8)
Reports	3,136	18,040,949	31.4 (1.4)	10.2 (0.8)	11.4 (0.6)	11.3 (1.3)	35.7 (1.7)
Forms	3,132	18,026,922	47.7 (2.4)	10.7 (0.6)	8.7 (0.9)	6.6 (0.5)	26.3 (2.1)
Bills/Invoices	3,130	18,011,281	21.3 (1.4)	10.4 (0.9)	7.4 (0.8)	9.4 (0.9)	51.5 (1.9)

*The numbers in parentheses are estimated standard errors.

Frequency of Newspaper Reading

As was shown in the young adult assessment (Kirsch, Jungeblut, and Rock, 1988), one important indication of literacy practice is the frequency with which people report reading a newspaper. Table 3.33 shows the frequencies with which the JTTA population reports reading a newspaper in English. The table indicates that about 90 percent of the applicants report reading a newspaper at least once a week and only about 3 percent report never reading a newspaper. There do not seem to be any significant differences by race/ethnicity in the frequency of reported newspaper reading, except that a greater percentage of Hispanic than White applicants report that they never read a newspaper in English. Respondent's level of education, however, does seem to be associated with the frequency of reported newspaper reading. For example, only 29 percent of those with less than a high school education report reading a newspaper daily compared with a range of 41 to 56 percent of those with higher levels of education. Similarly, a greater percentage of those over the age of 45 read a newspaper daily as compared with those aged 45 and under.

Table 3.33 **Frequency of Reported Newspaper Reading for JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,495	1,098,167	44.5 (2.4)	32.7 (1.6)	14.4 (1.8)	5.6 (0.8)	2.9 (0.7)
RACE/ETHNICITY							
White	1,554	760,336	43.5 (2.2)	33.6 (1.8)	15.0 (2.0)	6.0 (1.1)	1.9 (0.4)
Black	661	230,074	45.2 (5.2)	32.3 (4.3)	13.3 (3.8)	4.2 (0.7)	5.0 (2.3)
Hispanic	159	64,912	54.9 (5.7)	23.6 (4.5)	10.6 (2.7)	3.8 (1.8)	7.1 (2.6)
LEVEL OF EDUCATION							
0-8 Years	175	64,728	29.0 (4.0)	33.0 (6.3)	18.1 (5.2)	9.0 (1.6)	11.0 (4.0)
9-12 Years	704	302,094	40.6 (3.5)	32.0 (1.8)	17.5 (2.9)	4.6 (1.1)	5.2 (1.5)
H.S. Dip. or GED	1,044	484,560	45.0 (2.6)	33.9 (2.4)	13.7 (2.1)	6.5 (1.2)	0.9 (0.3)
Some Postsecondary	440	184,203	51.1 (3.7)	30.1 (4.0)	12.2 (2.4)	4.6 (1.0)	2.0 (1.2)
College Degree	130	61,480	55.9 (5.2)	32.1 (4.9)	7.2 (3.5)	3.7 (1.8)	1.1 (0.7)
AGE							
16-20	489	185,317	36.0 (3.0)	35.4 (2.8)	16.7 (3.8)	7.2 (1.5)	4.8 (1.4)
21-25	484	213,714	42.4 (4.1)	31.9 (3.9)	14.9 (1.8)	8.0 (1.5)	2.8 (1.1)
26-31	504	233,703	42.1 (4.5)	38.4 (4.0)	14.4 (2.3)	3.6 (0.9)	1.5 (0.7)
32-45	733	340,218	45.1 (2.3)	33.3 (3.3)	13.0 (2.3)	6.1 (1.4)	2.5 (1.1)
46+	259	115,018	66.5 (5.5)	17.0 (4.7)	11.4 (3.3)	1.7 (0.8)	3.4 (2.5)
LABOR FORCE STATUS							
Employed	492	241,746	52.0 (3.3)	27.2 (3.2)	12.2 (2.9)	6.2 (1.6)	2.4 (0.7)
Not Employed	827	352,733	45.2 (3.1)	36.5 (3.3)	11.5 (1.7)	4.9 (1.2)	2.0 (0.7)
Out of Labor Force	1,176	503,688	40.3 (3.4)	32.7 (1.6)	17.4 (2.8)	5.9 (1.0)	3.7 (1.2)

*The numbers in parentheses are estimated standard errors.

About 90 percent of the ES/UI population also report reading a newspaper at least once a week, as seen from Table 3.34. As with the JTPA applicants, there is a difference in reported frequency of newspaper reading between White and Hispanic participants; in the case of ES/UI, however, the difference appears with respect to daily reading (instead of not reading), with about 58 of the White participants and about 42 percent of the Hispanic participants reporting daily newspaper reading. For the ES/UI population, there is also an association between level of education and frequency of reported newspaper reading. With respect to daily newspaper reading, the most significant difference occurs, however, between those with less than or some high school and those with at least some postsecondary education. In addition, the percentages of participants who report never reading a newspaper decreases from 16 percent for those with less than high school to about 1 percent for those with college degrees. There also appears to be more of an association between age and reported frequency of newspaper reading for the ES/UI population than for JTPA. The percentage for daily newspaper reading increases significantly from about 44 percent for those aged 26 to 31 to about 58 percent for those aged 32 to 45, and then to 73 percent for those over age 45.

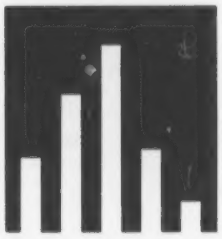
Table 3.34 **Frequency of Reported Newspaper Reading for ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status***

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,273	18,888,425	53.5 (2.3)	28.2 (0.8)	10.9 (1.4)	5.4 (0.6)	2.1 (0.5)
RACE/ETHNICITY							
White	2,393	11,891,452	57.6 (2.2)	25.9 (1.4)	10.5 (1.3)	4.8 (0.7)	1.3 (0.3)
Black	375	2,189,197	50.7 (4.0)	29.6 (1.4)	10.4 (1.9)	7.2 (2.6)	2.0 (0.8)
Hispanic	384	3,824,079	41.5 (2.2)	34.3 (2.7)	12.6 (3.5)	6.5 (1.4)	5.0 (1.5)
LEVEL OF EDUCATION							
0-8 Years	120	511,432	37.6 (6.0)	22.5 (8.8)	15.0 (4.6)	6.6 (4.2)	16.3 (7.5)
9-12 Years	500	2,941,253	44.7 (3.9)	28.9 (2.5)	15.2 (2.4)	8.7 (1.6)	2.5 (0.8)
H.S. Dip. or GED	1,279	6,681,481	52.6 (2.6)	28.0 (1.5)	11.3 (1.8)	6.3 (1.2)	1.8 (0.7)
Some Postsecondary	860	5,149,103	54.8 (2.3)	31.5 (1.4)	7.7 (0.9)	4.4 (1.1)	1.6 (0.6)
College Degree	511	3,582,636	62.7 (3.4)	23.7 (2.5)	10.6 (1.4)	2.4 (1.0)	0.7 (0.7)
AGE							
16-20	314	1,845,836	45.9 (4.2)	37.0 (2.4)	9.5 (3.7)	5.5 (1.7)	2.1 (0.9)
21-25	616	3,418,336	42.0 (3.9)	34.1 (2.7)	15.0 (2.2)	7.5 (1.2)	1.4 (0.8)
26-31	727	4,146,004	43.8 (3.4)	34.4 (1.1)	12.0 (2.0)	5.8 (1.4)	4.0 (2.0)
32-45	1,059	6,109,941	57.8 (2.0)	24.2 (1.2)	10.7 (1.4)	5.8 (0.7)	1.6 (0.5)
46+	544	3,289,378	73.4 (3.5)	16.8 (2.2)	6.4 (2.5)	2.2 (0.9)	1.2 (0.6)
LABOR FORCE STATUS							
Employed	1,297	7,145,732	51.8 (2.9)	29.6 (2.9)	10.4 (1.7)	6.0 (0.8)	2.4 (0.8)
Not Employed	1,126	6,404,895	59.0 (2.9)	25.8 (2.0)	9.4 (1.9)	4.9 (1.5)	1.0 (0.3)
Out of Labor Force	850	5,337,797	49.1 (2.0)	29.3 (2.4)	13.3 (1.2)	5.4 (1.3)	2.9 (1.4)

*The numbers in parentheses are estimated standard errors.

CHAPTER 4

COMPARING LITERACY SKILLS



While the examination of weighted mean percents correct allows profiles to emerge for various subgroups of interest, the mean weighted percents correct are entirely a function of the particular sets of tasks comprising each of the scales. Through the use of IRT, a common scale is constructed on which performance can be meaningfully compared across groups independent of the particular tasks contributing to the scale.

(Kirsch & Jungeblut, 1986)

As discussed in Chapter 2, item response theory (IRT) technology was employed as a scaling model to enhance the comparability and interpretability of data across groups and time as well as to provide a basis for relating background variables to demonstrated proficiencies.

Since the total pool of tasks administered in the DOL assessment included those from the 1986 young adult assessment, it was possible to place the newly developed DOL tasks onto the three established literacy scales — prose, document, and quantitative. Each scale is designed to range from 0 to 500, but experience indicates that most of the tasks on each scale fall between 200 and 400. Using IRT scaling procedures, the relative position of the tasks on their appropriate literacy scale is defined in terms of a response probability of 80 percent (RP80). This means that if, for example, a group mean is 300, an individual in that group who scores at the mean can be expected to perform tasks at the 300 level with an 80 percent probability of success. The selection of a probability criterion of 80 percent is arbitrary, to be sure, but if the probability of success is set at 80 percent, one can feel quite certain that successful performance will be consistent on tasks of a given difficulty level.

Chapter 3 has characterized the DOL populations in terms of responses to the demographic and background variables in the background questionnaire. As an important next step in this initial exploration of the data, this chapter discusses differences in mean performance scores across the three literacy scales on the basis of several demographic, education, and labor-market variables. These include demographic variables of gender, age, and race/ethnicity, and the variable of educational attainment as well as two variables relating to labor market status — weeks of employment during the one-year period preceding the assessment and whether or not participants were employed, unemployed and looking for work, or out of the labor force during the week prior to the assessment. Such data are important for understanding the extent and nature of any existing literacy problems and in determining how serious they are. Moreover, these data serve to establish baseline information against which changes can be measured over time.

• Total JTPA and ES/UI Populations

Table 4.1 indicates that ES/UI program participants score, on average, about 291 on the prose scale, 284 on the document scale, and 291 on the quantitative scale. These average proficiency scores are somewhat higher than those demonstrated by eligible applicants for JTPA programs where the mean scores are 284, 274, and 281, respectively. These differences among group means are large enough to be statistically significant (at the .05 level or above) on the document and quantitative scales but are not significant on the prose scale.

• Men and Women

As shown in Table 4.1, the majority of the eligible JTPA applicants are female (58 percent) while the majority of ES/UI program participants are male (56 percent).[1] There is a tendency for women to perform somewhat higher than men, but in most instances, the differences are only a few points and are not statistically significant. For the JTPA population, however, women do score significantly higher than men on the prose scale, with the mean scores being 291 and 274, respectively.

These results are somewhat different from the findings of the 1986 young adult assessment. Although there was also a tendency for women to score somewhat higher than men on the prose scale (298 as compared with 295), this difference was not statistically significant. However, the National Assessment of Educational Progress has reported that elementary and secondary school girls have performed significantly better than boys on the NAEP reading scale across several assessments. It may be that the prose scale measures aspects of literacy that are the most sensitive to the reading curriculum taught in schools.

Table 4.1 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Gender***

	n	Weighted N	Prose	Document	Quantitative
Total JTPA	2,501	1,100,000	284.2 (2.9)	274.3 (3.1)	280.6 (3.1)
Males	1,008	451,859	274.3 (3.6)	270.7 (4.1)	278.4 (3.7)
Females	1,484	637,956	291.3 (2.9)	277.3 (2.8)	282.6 (3.1)
Total ES/UI	3,277	18,937,087	290.6 (4.0)	283.6 (3.1)	290.6 (3.1)
Males	1,756	10,631,408	287.0 (4.7)	282.5 (4.1)	291.5 (3.9)
Females	1,515	8,255,060	295.6 (3.6)	285.4 (3.1)	289.4 (2.9)

*The numbers in parentheses are estimated standard errors.

[1] For some variables, there are missing data because not all respondents answered all the questions they should have in the background questionnaire. As a result, the numbers for a particular subgroup may not add up to the number for the total sample.

• AGE

Table 4.2 provides a summary of the relationship between demonstrated literacy proficiencies and age for the total JTPA and ES/UI populations. The modal age for the populations being served by each program is in the category 32 to 45 years, and for each program roughly one-third of the applicants are in this age range. Nevertheless, the age distributions reveal that JTPA is serving a higher proportion of individuals in the combined 16-to-25 age ranges (36 percent compared to 28 percent), while ES/UI is serving a higher proportion of adults 46 years and older (17 percent compared with 10 percent).

In the ES/UI population, individuals in the combined age ranges of 16 to 25 perform significantly below the levels of literacy demonstrated by other age groups, while it appears that literacy proficiencies are at similar levels across the three upper age groups. The picture is somewhat different for JTPA eligible applicants. Within this population, it is only individuals in the youngest age group (16 to 20) who demonstrate significantly lower levels of proficiency, although demonstrated proficiencies seem to drop off for those age 46 and older.

Table 4.2 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Age***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
16-20	489	185,317	265.4 (3.1)	260.3 (4.5)	262.6 (3.0)
21-25	485	213,863	286.7 (3.5)	279.9 (3.4)	283.0 (3.7)
26-31	505	233,885	287.6 (5.4)	278.2 (3.8)	282.6 (4.1)
32-45	733	340,218	292.8 (3.3)	280.2 (5.1)	289.6 (5.0)
46+	259	115,018	280.8 (7.1)	263.8 (3.4)	277.4 (4.8)
ES/UI					
16-20	314	1,845,836	276.5 (7.6)	274.7 (4.3)	272.3 (4.1)
21-25	616	3,418,336	278.7 (4.7)	274.8 (6.0)	281.9 (5.8)
26-31	727	4,146,004	291.8 (4.1)	284.9 (3.3)	293.2 (3.3)
32-45	1,059	6,109,941	297.9 (5.1)	290.1 (3.2)	297.4 (3.2)
46+	546	3,308,221	297.0 (4.4)	284.4 (4.5)	294.2 (4.7)

*The numbers in parentheses are estimated standard errors.

• RACE/ETHNICITY

As shown in Table 4.3, race/ethnicity has a notable relationship with mean performance for both the JTPA and the ES/UI populations. The data in this table show Black and Hispanic program participants scoring significantly below White participants. Among ES/UI participants, the difference between minority and White participants is, on average, a full standard deviation (50 points on the 0 to 500

Table 4.3 **Weighted Average Proficiency Scores on the Three Literacy Scales by Race/Ethnicity***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
White	1,556	760,740	292.8 (2.8)	284.3 (2.9)	291.5 (2.5)
Black	663	230,405	264.1 (4.8)	250.5 (4.5)	255.6 (4.8)
Hispanic	159	64,912	263.0 (6.1)	251.7 (5.0)	258.0 (5.2)
ES/UI					
White	2,394	11,894,800	311.1 (1.8)	301.8 (2.0)	308.5 (1.5)
Black	375	2,189,197	261.7 (5.2)	250.7 (3.5)	257.9 (5.8)
Hispanic	384	3,824,079	249.6 (5.0)	246.1 (5.6)	254.0 (4.5)

*The numbers in parentheses are estimated standard errors.

score scale).[2] For JTPA eligible applicants, the difference is somewhat smaller (about 30 points or only 60 percent of a standard deviation) but, nevertheless, highly statistically significant.

According to these data, the Hispanic survey participants applying for JTPA and ES/UI benefits perform, on average, at about the same level as Black participants. This finding is in contrast to those from other national databases in which Hispanic populations typically have been reported to obtain mean scores about midway between White and Black groups, or roughly one-half standard deviation from each (Rock, Ekstrom, Goertz, & Pollack, 1985; Kirsch & Jungeblut, 1986; Sum, Harrington, & Goedicke, 1986). Since the Hispanic participants in ES/UI programs obtain mean scores that are at least a full standard deviation below that for White participants, it appears that ES/UI programs are serving a less proficient population of Hispanic participants than would be expected of a nationally representative sample of the total population. The same argument holds for Hispanic applicants for JTPA programs, but to a lesser degree. On the other hand, since the means for eligible Black applicants for JTPA are only some 60 percent of a standard deviation below that for White applicants, it appears that the self-selection bias operating here is for more proficient Black individuals to apply for JTPA services.

It is important to note here that these data do not imply that all minority group members score at the lower levels on the three literacy scales or that the cause for lower performance is to be explained by the race/ethnicity variable. For example, data from the High School and Beyond study indicate that Black and Hispanic students are overrepresented in the disadvantaged group, which includes about 54 percent of Black

[2] The original NAEP scales were established to have a mean of 250 and a standard deviation of 50 for the combined proficiency distribution of grades 4, 8, and 12. Each subpopulation in this survey has means and standard deviations that differ somewhat from these figures. For purposes of discussing effect sizes, we will refer to a standard deviation of 50 points.

and 57 percent of Hispanic high school seniors. The scores of high school seniors from disadvantaged backgrounds are consistently one standard deviation below the average scores of other students (Sum, Harrington, & Goedicke, 1986). Moreover, recent data indicate that while as many as 20 percent of all children in this country may be growing up in homes that are at or near poverty levels, the percentage for minority populations could be as high as 50 percent.

• *Levels of Education*

Each person participating in this study was asked to state how many years of formal education he or she had completed. For reporting purposes, responses to this question were categorized into: zero to eight years; nine to 12 years but no diploma; a high school diploma or GED equivalency; some postsecondary; and a two- or four-year college degree or higher. As the data in Table 4.4 show, there is a very strong, positive relationship between reported level of education and demonstrated proficiency on each of the three literacy scales for both the JTPA and ES/UI populations. The difference in proficiency scores is significant at each successive level of education with the magnitude of the difference between the highest and lowest levels of education being about 100 points or two standard deviations.

Table 4.4 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Level of Education***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
0-8 Years	176	84,975	232.3 (4.6)	231.5 (5.5)	233.9 (5.1)
9-12 Years	705	302,247	255.3 (2.7)	249.5 (4.4)	254.4 (3.1)
H.S. Dip. or GED	1,045	484,742	294.1 (3.3)	283.0 (3.0)	289.6 (2.1)
Some Postsec.	442	184,509	306.3 (3.1)	291.6 (3.2)	298.4 (4.1)
College Degree	130	61,480	339.3 (11.1)	321.1 (8.9)	336.9 (9.8)
ES/UI					
0-8 Years	120	511,432	196.4 (14.1)	199.8 (17.1)	211.0 (12.5)
9-12 Years	500	2,941,253	249.1 (7.0)	247.1 (5.1)	251.7 (4.5)
H.S. Dip. or GED	1,279	6,681,481	286.1 (2.1)	279.4 (1.8)	288.4 (2.7)
Some Postsec.	861	5,154,636	303.4 (3.9)	296.5 (2.5)	299.9 (2.5)
College Degree	513	3,601,479	328.8 (4.2)	315.1 (4.7)	324.6 (3.8)

*The numbers in parentheses are estimated standard errors.

Given the billions of dollars spent on education in this country, it would be gratifying to interpret these differences in proficiencies as a sole result of the decision by some to continue their education, independent of other factors. Unfortunately, the relationship between educational attainment and literacy proficiency is not so simple.

On the one hand, those who report staying in school longer do demonstrate higher levels of proficiency. On the other hand, it may be that those with higher levels of proficiency choose to stay in school longer. In addition, other variables are likely to play an important role in helping to explain the variation noted here (cf. Chapter 7 of this report).

For example, data from the young adult assessment indicate that intergenerational aspects of poor academic performance — parental education, economic situation, and early home experiences — are all likely to affect an individual's system of values and knowledge. These value and knowledge systems can be expected to have cumulative and lasting effects on interests, motivations, aspirations, and ultimately on literacy practices and proficiencies.

Table 4.4 reveals that ES/UI participants attain, on average, higher levels of education than those eligible for JTPA programs. For example, a larger percentage of ES/UI participants report having some type of college degree than do eligible JTPA applicants. In addition, among the total populations, about 21 percent of the ES/UI participants report not obtaining a high school diploma as compared with about 33 percent of JTPA eligible applicants. Except among applicants who reported zero to eight years of education, the mean literacy proficiencies for the two DOL populations do not differ significantly on the basis of educational attainment. However, as would be expected, the mean proficiencies increase with higher reported educational attainment across scales within each population.

The strong relationship between level of education and literacy proficiency holds for each racial/ethnic subgroup within the JTPA and ES/UI populations. As shown in Table 4.5, regardless of racial/ethnic background, level of education is significantly related to level of performance on the three literacy scales. In addition, there are few differences in mean performance between JTPA and ES/UI populations within a particular level of educational attainment. While a number of the differences in mean scores appear large, the only differences between JTPA and ES/UI means that reach statistical significance at the .05 level or above for White respondents are found on the document scale for individuals reporting nine to 12 years of education (high school dropouts) and for those reporting some postsecondary experience. The only significant difference for Black program participants is on the document scale for individuals reporting zero to eight years of education.

Alternative High School Certification

JTPA and ES/UI program participants who did not receive a high school diploma were asked whether or not they ever participated in a GED or high school equivalency program. Among ES/UI participants, about 46 percent indicate they had

Table 4.5 **Weighted Average Proficiency Scores on the Three Literacy Scales by Race/Ethnicity and Level of Education***

JTPA Level of Education

Race/Ethnicity	0-8 Yrs.	9-12 Yrs.	H.S. Diploma or GED	Some Post-secondary	College Degree
White					
Prose	242.9 (6.9)	261.6 (3.7)	300.9 (3.6)	318.2 (3.8)	346.4 (13.2)
Document	237.1 (6.8)	259.9 (3.1)	292.1 (3.7)	301.4 (2.4)	329.9 (7.9)
Quantitative	241.3 (5.7)	264.9 (3.0)	298.7 (2.1)	311.2 (3.3)	346.8 (8.0)
Black					
Prose	206.3 (7.4)	244.0 (6.9)	273.4 (6.9)	286.7 (7.9)	306.5 (11.0)
Document	217.5 (15.0)	228.4 (5.4)	256.5 (3.5)	274.7 (5.6)	288.7 (6.9)
Quantitative	217.3 (19.6)	234.8 (4.0)	263.0 (4.3)	275.1 (7.7)	307.8 (9.2)
Hispanic					
Prose	203.4 (13.1)	229.2 (11.6)	278.3 (11.7)	277.8 (7.0)	304.7 (52.1)
Document	199.3 (14.0)	228.1 (10.5)	258.9 (10.8)	273.7 (8.9)	271.0 (22.9)
Quantitative	201.7 (11.2)	223.6 (8.1)	272.7 (9.9)	277.7 (10.9)	282.4 (35.1)

ES/UI Level of Education

Race/Ethnicity	0-8 Yrs.	9-12 Yrs.	H.S. Diploma or GED	Some Post-secondary	College Degree
White					
Prose	224.3 (8.1)	272.9 (4.2)	300.4 (2.3)	317.9 (2.6)	344.8 (4.1)
Document	225.0 (8.1)	269.6 (2.5)	293.7 (2.1)	309.2 (2.2)	326.9 (5.7)
Quantitative	238.2 (9.7)	271.7 (3.6)	301.7 (2.6)	313.8 (3.1)	336.0 (3.7)
Black					
Prose	201.4 (21.5)	230.5 (10.8)	256.6 (7.0)	283.1 (6.2)	290.1 (12.1)
Document	160.2 (12.3)	222.9 (12.7)	248.0 (4.4)	266.8 (6.3)	278.5 (17.8)
Quantitative	196.0 (21.8)	227.7 (12.4)	259.3 (7.7)	268.5 (4.5)	284.3 (13.5)
Hispanic					
Prose	176.2 (7.3)	227.5 (8.5)	261.2 (6.6)	275.0 (8.8)	274.4 (7.2)
Document	179.2 (14.0)	228.3 (5.2)	250.9 (5.8)	273.7 (6.3)	267.1 (11.3)
Quantitative	194.3 (9.3)	235.7 (6.2)	260.5 (4.5)	274.7 (7.1)	284.2 (6.4)

*The numbers in parentheses are estimated standard errors.

studied for the GED as compared with about 56 percent of eligible JTPA applicants. More importantly, those who report studying for the GED score about one-half of a standard deviation (or 25 points) higher on the three literacy scales than those who report not studying for the certificate.

Thus, among JTPA and ES/UI program participants without a high school diploma, those demonstrating higher levels of literacy are more likely to pursue the GED than those with lower levels of skill. At the time of this DOL assessment, some 60 percent of JTPA and ES/UI program participants who reported studying for the GED also indicated receiving a certificate. Again, mean performance on the three literacy measures appears to be strongly related to whether or not a GED certificate

was obtained. The differences in means shown in Table 4.6 of those who received the GED and those who did not range from 35 to 50 points on the three literacy scales. For example, the average prose score was 295 for JTPA eligible applicants who reported receiving their GED and 247 for those who said they did not receive the certificate. Similarly, among ES/UI participants the prose scores were 291 as compared with 240. Whether these differences result primarily from learning gains that occur as a result of participation in the various programs or reflect pre-existing conditions, it appears that a GED certificate is a good proxy for higher literacy levels — that is, for both population groups, the mean literacy proficiency scores of those individuals receiving a GED are similar to those reporting a high school diploma.

Table 4.6 **Weighted Average Proficiency Scores on the Three Literacy Scales for Those Who Study for the GED and Those Who Received the GED***

	Study		Received	
	Yes	No	Yes	No
JTPA				
Prose	274.6 (4.6)	250.3 (5.6)	294.8 (4.1)	246.8 (7.7)
Document	270.5 (4.8)	244.3 (4.6)	285.4 (4.4)	250.1 (6.7)
Quantitative	273.1 (5.4)	249.5 (4.0)	289.1 (4.7)	251.1 (6.6)
ES/UI				
Prose	270.3 (6.2)	247.8 (8.5)	291.2 (6.0)	239.8 (8.2)
Document	268.3 (5.1)	240.8 (8.4)	284.7 (3.1)	244.6 (9.1)
Quantitative	276.6 (5.0)	248.8 (8.2)	293.3 (3.4)	254.7 (10.6)

*The numbers in parentheses are estimated standard errors.

• Employment, Earnings, and Occupation

During the past decade there have been a number of reports — *America's Choice: High Skills or Low Wages!* (June, 1990); *Toward a More Perfect Union* (Berlin & Sum, 1988); *The Subtle Danger* (Venezky, Kaestle, & Sum, 1987); *Workplace Competencies: The Need to Improve Literacy and Employment Readiness* (Barton & Kirsch, 1990); *and Workforce 2000* (Hudson Institute, 1987) — that emphasize the role education and literacy play in meeting the human resource needs of this country. In the DOL assessment, individuals were asked a series of questions that relate to what they were doing last week, the number of weeks worked in the preceding 12 months, the type of job they held most recently, and their hourly wage in that job. Analyses of the data in Tables 4.7 to 4.10 reveal that individuals who demonstrate higher levels of literacy skills avoid long periods of unemployment, earn higher wages, and work in higher level occupations than those program participants who demonstrate lower literacy skills.

Table 4.7 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population, Labor Force Status, and Weeks of Employment***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
Weeks of Employment					
0	619	233,054	271.0 (4.6)	261.3 (3.7)	268.3 (4.4)
1-13	515	225,057	276.3 (3.7)	268.4 (3.7)	275.9 (3.4)
14-26	502	237,421	290.0 (5.2)	278.1 (4.2)	283.1 (3.7)
27-39	332	129,172	292.2 (4.8)	283.9 (3.4)	290.7 (4.7)
40+	533	275,297	293.2 (5.9)	282.2 (5.6)	288.0 (7.1)
Labor Force Status					
Employed	492	241,746	298.4 (7.0)	283.0 (6.0)	289.0 (6.0)
Not Employed – Looking	829	353,043	285.2 (3.5)	274.6 (3.9)	281.2 (3.3)
Out of Labor Force	1,180	505,211	276.7 (3.8)	269.8 (3.4)	276.2 (3.3)
ES/UI					
Weeks of Employment					
0	171	1,211,117	266.8 (12.2)	263.6 (6.4)	269.1 (10.9)
1-13	226	1,683,571	275.6 (6.2)	267.5 (6.8)	276.9 (5.2)
14-26	358	2,445,848	280.9 (5.1)	278.3 (5.5)	284.2 (4.2)
27-39	466	2,604,417	291.8 (7.6)	281.4 (6.4)	287.9 (6.1)
40+	2,056	10,992,134	297.4 (3.4)	290.0 (2.4)	297.1 (2.8)
Labor Force Status					
Employed	1,299	7,164,575	295.2 (2.9)	291.0 (3.2)	298.1 (3.3)
Not Employed – Looking	1,127	6,410,428	293.3 (4.3)	285.1 (3.6)	293.7 (2.6)
Out of Labor Force	851	5,362,085	281.3 (7.9)	272.0 (4.6)	276.8 (6.0)

*The numbers in parentheses are estimated standard errors.

Weeks of Employment and Labor Force Status

As can be seen in Table 4.7, the pattern of results for the two DOL populations is very similar. That is, individuals who report longer periods of employment during the 12 months preceding the survey demonstrate higher levels of proficiency than their counterparts who report fewer weeks of employment. For example, JTPA eligible applicants who report 13 or fewer weeks of employment achieve mean literacy scores of 275 or lower on the three scales, while the mean scores for those reporting 27 or more weeks of employment approximate the 290 level.

The labor force status variable that characterizes the work pattern during the week preceding the assessment reveals the same pattern of results as does the variable of weeks of employment. Individuals in each of the DOL populations who report being employed the week prior to the assessment have average literacy scores at about 290 or above, while those who report being out of work and not looking for a job — i.e., out of the labor force — attain average proficiency scores of about 275 or below.

Table 4.8 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Hourly Wage***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
Up to $3.85	151	60,855	284.2 (8.1)	271.8 (7.6)	275.3 (6.7)
$3.86-$4.99	128	59,440	292.1 (6.9)	288.5 (7.7)	291.6 (7.3)
$5.00-$6.99	121	58,724	290.7 (11.0)	275.9 (7.7)	284.3 (9.3)
$7.00-$9.99	37	23,921	334.0 (22.4)	303.1 (22.1)	320.3 (14.9)
$10.00 +	38	29,271	321.3 (16.2)	293.5 (7.8)	298.8 (10.2)
ES/UI					
Up to $3.85	132	479,565	283.2 (7.5)	275.2 (7.3)	283.3 (8.6)
$3.86-$4.99	210	950,315	265.9 (6.1)	264.5 (7.4)	274.8 (6.4)
$5.00-$6.99	325	1,638,240	286.2 (4.1)	280.2 (4.3)	286.1 (3.5)
$7.00-$9.99	315	1,855,104	298.0 (3.3)	291.0 (4.9)	299.8 (3.0)
$10.00 +	289	2,114,811	314.2 (5.1)	313.3 (3.6)	318.7 (6.0)

*The numbers in parentheses are estimated standard errors.

Earnings and Income

The data reported in Table 4.8 represent hourly wage information for those individuals in each population who report being employed the week prior to the assessment. This represents roughly 20 percent of the JTPA eligible applicants and nearly 40 percent of the ES/UI program participants. While the progression of mean proficiency scores are not as consistent as those discussed above, Table 4.8 reinforces the notion that demonstrated literacy proficiencies can be expected to increase in association with hourly wage. For example, ES/UI participants who report earning between $7.00 and $9.99 attain average proficiencies of around 300, while those who report earning $10.00 or more per hour demonstrate proficiencies at about the 315 level.

A more consistent pattern emerges in the data displayed in Table 4.9 reflecting reported household income. As is typical with income and performance data, the range in mean proficiency scores is relatively wide across each of the DOL populations. This range in mean proficiency scores extends over a full standard deviation (in fact, some 60 points) for the ES/UI population and approaches a full standard deviation on the prose and quantitative scales for the JTPA eligible applicants. It is not too surprising to see that household income increases along with demonstrated levels of proficiency.

Occupations

While it would be beneficial to know the level of literacy required to obtain and succeed in various occupations, no research has been completed that would allow such statements to be made with any confidence. Still, some perspective can be gained by looking at the demonstrated proficiency levels of people in the DOL populations who report having worked in various occupational categories.

Table 4.9 **Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Household Income***

	n	Weighted N	Prose	Document	Quantitative
JTPA					
Up to $4,999	735	277,211	271.4 (3.8)	260.9 (2.6)	263.2 (3.7)
$5,000-9,999	594	245,040	286.2 (4.6)	280.0 (4.1)	285.1 (4.0)
$10,000-14,999	332	137,462	281.8 (4.7)	273.2 (3.8)	281.5 (5.5)
$15,000-19,999	175	83,094	297.4 (10.4)	292.9 (6.2)	291.9 (5.7)
$20,000-29,999	188	107,308	296.5 (6.0)	289.8 (4.1)	297.5 (5.9)
$30,000-39,999	121	70,315	314.1 (10.5)	294.3 (9.0)	309.3 (10.9)
$40,000-49,999	64	28,411	307.3 (10.4)	294.9 (7.3)	303.5 (9.1)
$50,000 +	28	19,464	315.8 (13.2)	287.4 (10.0)	305.5 (11.1)
ES/UI					
Up to $4,999	253	1,495,024	263.0 (6.4)	257.2 (6.1)	265.8 (5.3)
$5,000-9,999	359	2,059,540	267.8 (6.8)	261.4 (6.7)	270.8 (6.4)
$10,000-14,999	423	2,362,704	281.5 (6.2)	268.2 (6.0)	278.5 (4.0)
$15,000-19,999	357	1,917,485	286.2 (8.0)	277.0 (5.9)	287.1 (5.6)
$20,000-29,999	585	3,009,634	293.4 (5.3)	290.4 (3.9)	296.4 (5.6)
$30,000-39,999	428	2,437,458	309.5 (4.2)	302.1 (2.5)	304.0 (4.3)
$40,000-49,999	273	1,478,380	305.3 (3.5)	296.7 (3.4)	303.8 (3.7)
$50,000 +	328	2,270,563	324.0 (4.4)	320.5 (2.5)	325.3 (5.3)

*The numbers in parentheses are estimated standard errors.

The data in Table 4.10 indicate that the literacy levels of individuals reporting various occupations do differ considerably. In fact, the range of mean proficiency scores for both DOL populations extends over almost a full standard deviation (50 points) on each of the three scales. For example, individuals who report working in professional positions have average prose and quantitative proficiencies around the 320 level compared with those who report working in laborer and service occupations where the means are around the 270 level. On the document scale, the means range from about 300 for those reporting professional occupations to about 265 for those reporting laborer and service occupations.

While the range of average proficiency scores is similar in each DOL population, the occupational groupings are somewhat different. That is, for the eligible JTPA applicants two clusters seem to emerge. Those individuals who report laborer, service, operative, or craft occupations demonstrate literacy proficiencies that cluster around 270 to 280. In contrast, those reporting clerical through professional occupations have means that range from 290 to 320 on the literacy scales.

Within the ES/UI population, three clusters of occupational groups emerge. The average proficiency scores for individuals reporting laborer, service, or operative occupations center around the 270 level. For craft and clerical occupations, the means approximate 290 and for sales through professional occupations, the means tend to exceed the 300 level.

Table 4.10 Weighted Average Proficiency Scores on the Three Literacy Scales by Population and Recent Occupation*

	n	Weighted N	Prose	Document	Quantitative
JTPA					
Laborer	258	123,678	272.2 (3.8)	264.8 (4.7)	268.0 (4.6)
Service	543	234,016	276.9 (4.6)	265.9 (4.3)	274.1 (4.8)
Operative	417	200,639	282.8 (4.3)	274.4 (3.9)	281.1 (4.4)
Craft	206	92,762	280.2 (6.1)	280.3 (6.7)	284.9 (7.5)
Clerical	228	96,811	304.8 (5.3)	288.4 (5.7)	297.3 (5.2)
Sales	287	115,263	298.8 (5.7)	286.6 (6.3)	291.7 (5.2)
Technical	31	13,103	316.4 (18.7)	303.5 (12.8)	303.9 (8.6)
Manager	111	54,675	313.9 (8.1)	298.3 (7.0)	314.6 (6.8)
Professional	70	38,656	319.5 (19.1)	299.5 (14.3)	317.7 (15.4)
ES/UI					
Laborer	311	1,573,455	268.5 (10.3)	268.4 (9.5)	278.9 (9.2)
Service	411	2,076,633	274.0 (6.1)	262.3 (6.4)	274.1 (6.2)
Operative	554	3,074,901	270.9 (6.2)	264.5 (4.7)	274.2 (5.1)
Craft	379	2,100,824	285.5 (4.8)	283.2 (4.0)	290.4 (3.6)
Clerical	430	2,751,452	296.5 (5.7)	284.8 (4.3)	289.6 (4.3)
Sales	396	2,325,324	301.6 (5.0)	296.4 (4.3)	303.2 (3.7)
Technical	74	371,848	315.8 (10.5)	307.1 (13.0)	306.4 (11.5)
Manager	389	2,546,878	319.5 (5.1)	312.7 (3.0)	318.1 (3.4)
Professional	178	1,101,416	322.4 (6.2)	312.1 (5.0)	323.2 (6.4)

*The numbers in parentheses are estimated standard errors.

Demonstrated Proficiency and Perceived Adequacy of Literacy Skills

As shown in Table 4.11, there are significant differences in literacy proficiency levels between those who report their reading, writing, and mathematics skills were adequate for their most recent job and those who report they were not. Without exception, those who report that their skills were adequate score significantly higher on the three scales than those who report that their skills were not adequate. The difference between these two groups with respect to reading skills is more than a standard deviation (about 50 points on a scale of 0 to 500) for the prose and document scales and is somewhat smaller, about 80 percent of a standard deviation

Table 4.11 Literacy Proficiency Levels for JTPA Applicants Reporting Adequacy of Literacy Skills for Their Most Recent Job*

	Reading		Writing		Mathematics	
	Yes	No	Yes	No	Yes	No
Prose	289.6 (2.9)	223.9 (12.0)	290.2 (2.7)	251.1 (9.0)	289.7 (2.6)	265.1 (9.8)
Document	279.2 (3.0)	222.1 (10.0)	280.0 (3.0)	243.1 (7.2)	279.2 (2.9)	255.3 (7.9)
Quantitative	286.0 (2.9)	244.5 (14.1)	287.1 (2.8)	253.1 (9.1)	286.9 (3.0)	259.6 (9.8)

*The numbers in parentheses are estimated standard errors.

(40 points), for the quantitative scale. With respect to writing skills, the difference is at least two-thirds of a standard deviation (33 points) for all three scales, and for mathematics the difference is about half a standard deviation (25 points). (See Table E.6 for proficiency levels for JTPA applicants by race/ethnicity and labor force status.)

Table 4.12 shows the literacy proficiency levels by scale for each skill area for the ES/UI population. As with the JTPA population, those ES/UI participants who report that their skills were adequate score significantly higher than those who report that their skills were not adequate. Across all three scales, the difference between the two groups is more than a standard deviation with respect to reading skills, is about two-thirds of a standard deviation for writing, and approaches or reaches 80 percent of a standard deviation for mathematics. (See Table E.7 for proficiency levels for ES/UI participants by race/ethnicity and labor force status.)

Table 4.12 **Literacy Proficiency Levels for ES/UI Participants Reporting Adequacy of Literacy Skills for Their Most Recent Job***

	Reading		Writing		Mathematics	
	Yes	No	Yes	No	Yes	No
Prose	294.8 (3.5)	226.3 (13.6)	295.1 (3.6)	261.6 (12.2)	294.3 (3.4)	258.7 (12.2)
Document	287.3 (2.8)	228.2 (14.5)	288.1 (2.8)	253.7 (10.7)	287.9 (2.8)	248.5 (10.9)
Quantitative	294.4 (2.6)	242.0 (9.8)	295.4 (2.8)	261.7 (9.5)	295.6 (2.7)	253.3 (8.6)

*The numbers in parentheses are estimated standard errors.

• Summary

For the two DOL populations, no significant difference in mean score performance is demonstrated on the prose scale, but on the document and quantitative scales the means for the ES/UI population are significantly higher than those for eligible JTPA applicants. For the most part, there are no significant differences in mean scores between men and women in either DOL group. As revealed in these data, it is probably not surprising that JTPA is serving a higher proportion of younger individuals, while ES/UI is serving a higher proportion of adults 46 years of age and older. Both DOL programs appear to be serving a less skilled subgroup of Hispanic participants than would be expected of a nationally representative total population sample, but there is evidence of a relatively strong self-selection factor operating in the other direction for eligible Black applicants for JTPA — JTPA programs seem to be attracting a more highly skilled subgroup of Black participants than would be expected in relation to a nationally representative population.

Except for individuals reporting zero to eight years of education, there are no significant differences in the mean literacy proficiencies between the two DOL

populations reporting various levels of educational attainment. There is, however, an increase of mean proficiency scores across scales for each population as higher educational attainment is reported. This strong relationship between level of education and literacy proficiency holds for each racial/ethnic subgroup within both the JTPA and ES/UI populations. Few significant differences are evidenced between the mean proficiency scores for JTPA and ES/UI racial/ethnic subgroups. Those JTPA and ES/UI participants who do not hold a high school diploma but who report studying for the GED typically score about one-half standard deviation (or 25 points) above the groups who have apparently not sought an alternative route to obtaining an equivalent diploma. But, those individuals who study for and earn the GED on average score some 35 to 50 points (or a full standard deviation) higher than those who drop out of the GED program.

The data on employment history, earnings, and occupation indicate that individuals who avoid long periods of unemployment, earn higher wages, and work in higher-level jobs also demonstrate higher levels of literacy proficiency. On average, individuals who are characterized as out of the labor force — that is, report being out of work and not seeking employment — obtain lower mean literacy proficiencies than do individuals who report having been employed the week before participating in this assessment.

CHAPTER 5

PROFILING LEVELS OF PROFICIENCY

Moving from a single comprehensive literacy scale to multiple scales in which proficiencies can be profiled extends our understanding of the construct of literacy. That is, the implementation of multiple scales makes explicit an organizing framework for capturing in a useful way the diversity of tasks that have heretofore been interpreted in terms of a single index. The anchoring process described in this chapter takes us one step further in our understanding of the constructs being assessed by attempting to identify some of the major aspects contributing to task performance. It is through the identification of these task characteristics that one comes to better understand the meaning of the proficiency scores reported.

(Kirsch & Jungeblut, 1986)

This chapter will focus on extending the process of conceptualizing and anchoring the prose, document, and quantitative literacy scales that were established on the basis of the results of the literacy assessment of young adults (Kirsch & Jungeblut, 1986). Using the assessment design described in Chapter 2, the newly developed DOL literacy tasks were individually administered along with the 90 or so tasks from the 1986 young adult literacy assessment. The use of the common set of exercises in the two assessments allows us to place the newly created tasks onto the three established literacy scales.

Each of the three literacy scales is designed to range from 0 to 500. Experience indicates, however, that the majority of tasks fall between 200 and 400 on each scale. Using IRT scaling procedures, the relative position of the tasks on their respective scale is determined by a response probability criterion of 80 percent (RP80). (A complete list of all tasks by scale is provided in Appendix C.) The aim here is to guide appropriate interpretation of the RP80 values at various levels of proficiency along each scale. Table 5.1 provides a brief description of selected prose literacy tasks, their RP80 values, and the associated probabilities of responding correctly at various proficiency levels. Although the examples and the interpretations made here are specific to the prose literacy scale, performance data on the other two scales are interpreted in the same manner.

For example, consider someone who is estimated to be performing at the 250 level on the prose scale. The information in the table shows that such an individual can be expected to perform tasks at about this level with 80 percent probability — that is, to perform eight out of ten tasks at this level correctly. In other words, such an individual would be expected to respond successfully to this task and others like it in a

very consistent manner. An individual estimated to be performing at the 250 level has an 82 percent chance of responding correctly to the 246-level task involving a magazine article. In addition, this table shows that this individual would have even higher probabilities of success performing easier tasks. A person at the 250 level would be expected to perform tasks at about the 200 level with more than a 90 percent probability, e.g., that person has a 94 percent probability of success performing the 209-level task listed in Table 5.1.

Table 5.1 **Tasks and Associated Probabilities Along the Prose Scale**

Description of Selected Tasks	RP80 Value	Associated Probabilities at Selected Proficiency Levels						
		150	200	250	300	350	400	450
Identify single piece of information in a brief sports article	209	**36**	**75**	94	99	100	100	100
Identify single piece of information in a short announcement	210	**40**	**75**	93	98	100	100	100
Locate information in lengthy magazine article	246	11	**43**	**82**	97	99	100	100
Match two features of information in a brief sports article	253	13	**42**	**78**	95	99	100	100
Rephrase information stated in a magazine article	298	1	7	**36**	**82**	97	100	100
Integrate information from a news article on the economy	305	4	15	**44**	**78**	94	99	100
Compare new and old ways of processing credit card charges	346	3	10	28	**57**	**82**	94	98
Identify two situations that satisfy a given criterion	356	2	7	21	**49**	77	92	98

In contrast, this same individual would be expected to respond to an item at about the 300 level with a probability around 40 percent — 36 percent for the task with an RP80 value of 298. Although this person can be expected to demonstrate some success with tasks at the 300 level, performance would most likely be inconsistent — the individual would be expected to respond correctly less than half the time. Moreover, such an individual would have less than a 30 percent chance of responding correctly to tasks at around the 350 level on the prose scale.

The preceding paragraphs have focused on the probabilities of an individual with a particular (250) proficiency level successfully performing tasks along the prose scale. Now consider a task at the 253 level and the associated probabilities of responding correctly for individuals with varying levels of proficiencies. As shown in Table 5.1, the probability of responding correctly to this 253-level task for someone at the 150

level is only 13 percent. The probability increases to just over 40 percent for someone who is estimated to be performing at the 200 level and, as expected, 78 percent for someone at the 250 level. The probability of responding correctly to this task increases to over 95 percent for individuals who score at or above the 300 level on the prose scale.

Interpretations of other tasks presented in Table 5.1 can be made in a similar manner; that is, the task at the 298 level is relatively difficult for individuals whose estimated proficiencies are between 150 and 200 on the scale. They have between a 1 and 7 percent chance of responding correctly to this or similar tasks. Individuals at the 300 level have an 82 percent chance of responding correctly and individuals scoring at or above 350 would be expected to rarely miss this task or one like it.

To this point, the discussion has centered on appropriate interpretations of performance on tasks having a response probability criterion of 80 percent (RP80). As discussed in Chapter 2, each of the scales covers a particular area of literacy and is designed to represent processing demands associated with a range of materials selected from various adult contexts. Within this "materials by task" design, difficulty of the tasks depends to a large degree on the interaction between what is read (stimulus material) and what the respondent is asked to do with the material (question/directive).

To facilitate interpretation of proficiencies along each of the literacy scales, we have chosen to characterize them in terms of five discrete levels. These levels reflect the extent to which one or more variables operate in ways that were initially conceptualized for the original young adult assessment (Kirsch & Jungeblut, 1986) and further amplified by Kirsch and Mosenthal (1990) and the present DOL report. This work suggests that while literacy is not a single skill suited to all types of tasks, neither is it an infinite number of isolated skills each associated with a different type of material or purpose for reading. Rather there appears to be an ordered set of information-processing skills and strategies that may be called into play to accomplish the range of tasks falling along each of the scales. It is this ordering that we have attempted to capitalize on in describing the meaning of performance as it ranges from level 1 through level 5.

- *Prose Literacy*

An important area of literacy is the knowledge and skills needed to understand and use information contained in various kinds of textual material. Prose materials used in this assessment are mostly expository — that is, they define or describe — since that constitutes much of the prose that adults read. These materials include texts from newspapers, magazines, brochures, and pamphlets. It is important to note that the texts used in this assessment are reprinted in their entirety and replicate the layout and typography of the original sources. As a result, the prose

stimulus materials vary widely in length, density of information, and in the use of structural or organizational aids such as section or paragraph headings, italic or boldface type, and bullets.

The prose literacy scale contains 44 tasks that range from 164 to 465 on the scale. These tasks represent three major aspects of processing prose information: locating, integrating, and generating. Locate tasks require the reader to match information stated in a question or directive with information provided in the text. The match might be literal or synonymous or might require the reader to make an inference on the basis of one or more features. The integrate tasks in this assessment require the reader to pull together two or more pieces of information provided in the text. Such a task might require the reader to compare and contrast features given in the text with conditions provided in the question. In some cases, the information to be integrated is located within a single paragraph. In others, the reader must integrate information located in different paragraphs or sections of the text. The generate tasks in this assessment require readers not only to process information in the text, but also to go beyond the text and to draw on their background knowledge about a topic or to make text-based inferences.

It is important to note, however, that each of these three types of tasks extends over a range of difficulty as a result of interaction with other variables that include:

- the number of categories or features of information in the question that the reader has to process
- the number of categories or features of information in the text that can serve as distractors or plausible answers
- the degree to which information given in the question has less obvious identity with the information stated in the text
- the length and density of the text

Characterizing Levels of Proficiency on the Prose Scale

The following discussion highlights some of the tasks on the prose scale and describes how their position on the scale seems to reflect various combinations of these variables. Throughout the discussion, the numbers associated with specific tasks refer to the point on the scale at which the task is located based on an RP80 criterion. The headings for each level provide the percentage of the total JTPA and ES/UI populations estimated to be performing at that level.

Level 1 ≤ 225	JTPA	13.7%
Prose	ES/UI	12.2%

Tasks falling at or below the 225 level (level 1) on the prose scale require a reader to locate and match a single piece of requested information. Typically, the match between the question or directive and the text is literal, although sometimes a low-level inference may be necessary. In addition, the text is usually brief or has organizational aids such as paragraph headings or italics that help clue the appropriate places in the text to search for specific information. Finally, the key word or phrase appears only once in the text.

As an example, a passage reprinted in a newspaper about a marathon swimmer makes only one reference to food eaten during the swim. The directive asks the reader to "underline the sentence that tells what Ms. Chanin ate during the swim." This task at the 209 level requires matching "banana and honey sandwiches, hot chocolate, lots of water and granola bars" in the third paragraph with the word "ate" in the directive.

■

Swimmer completes Manhattan marathon

The Associated Press

NEW YORK—University of Maryland senior Stacy Chanin on Wednesday became the first person to swim three 28-mile laps around Manhattan.

Chanin, 23, of Virginia, climbed out of the East River at 96th Street at 9:30 p.m. She began the swim at noon on Tuesday.

A spokesman for the swimmer, Roy Brunett, said Chanin had kept up her strength with "banana and honey" sandwiches, hot chocolate, lots of water and granola bars."

Chanin has twice circled Manhattan before and trained for the new feat by swimming about 28.4 miles a week. The Yonkers native has competed as a swimmer since she was 15 and hoped to persuade Olympic authorities to add a long-distance swimming event.

The Leukemia Society of America solicited pledges for each mile she swam.

In July 1983, Julie Ridge became the first person to swim around Manhattan twice. With her three laps, Chanin came up just short of Diana Nyad's distance record, set on a Florida-to-Cuba swim.

■

Individuals who are estimated to score around 200 on the prose scale can be expected to perform these types of tasks successfully 80 percent of the time or better. Possibly because of their familiarity with the content, these readers will likely have some success with tasks at higher levels on the prose scale, but they would be expected to perform these more difficult tasks with much less consistency — 50 percent of the time or less, depending on the task.

Level 2 226-275 JTPA 26.2%
Prose ES/UI 25.2%

Tasks falling around the 250 level (from 226 to 275, or level 2) on the scale place more varied demands on the reader. In contrast with level 1 tasks where the key word or phrase to be matched appears only once in the text, the reader may need to discount distracting information that partially satisfies the question. With tasks in this range, the distracting information, if it appears, is widely separated from the sentence or paragraph containing the correct answer. For example, using the newspaper sports article reprinted on page 89, one question at the 253 level directs the reader to identify the age at which Ms. Chanin began swimming competitively. In this instance, the swimmer's current age of 23 appears early in the text and serves as a plausible answer (distractor) for when she began competing, which is given later in the news story as age 15.

The majority of tasks around 250 continue to require the reader to locate information but frequently require matching more than a single piece of information. If more than a single-feature match is required, however, the needed information is found in adjoining text. The tasks also move from primarily literal matches to those involving synonymous or low text-based inferences. Moreover, tasks at this level begin to require the reader to integrate information, such as comparing and contrasting brief statements to judge which best represents a criterion. As shown on the next page, the reader is asked to interpret a directive given in the form of an appliance warranty. This 273-level task requires that the reader identify the most appropriate of four statements describing the appliance's malfunction.

Although tasks requiring readers to generate information from text typically fall at higher levels on the prose scale, such tasks can be relatively easy. For example, a task at the 263 level requires the reader to generate a theme from a relatively short text (a poem) that uses a number of different metaphors to represent the single, relatively familiar concept of war. Despite the use of different metaphors, it is the repetition of the allusions to war that appears to make this task relatively easy.

Individuals who are estimated to be performing at the 250 level can be expected to perform these types of tasks successfully with around 80 percent probability. In turn, they can be expected to answer questions at or below the 225 level with better than 90 percent probability. For tasks above the 275 level, their probability of success falls to about 50 percent or less, depending on the task.

A The clock does not run correctly on this clock radio. I tried fixing it, but I couldn't.

C The alarm on my clock radio doesn't go off at the time I set. It rings 15-30 minutes later.

B My clock radio is not working. It stopped working right after I used it for five days.

D This radio is broken. Please repair and return by United Parcel Service to the address on my slip.

Level 3 276-325 JTPA 38.5%
Prose ES/UI 35.4%

Tasks at about the 300 level (ranging from 276 to 325, level 3) require the reader to search fairly dense text for information that is identified by making a literal or synonymous match on more than a single feature or to integrate two pieces of information from relatively long text that does not provide organizational aids. For example, a magazine article on parenting deals with the issue of physical punishment. A question at the 311 level directs the reader to "identify and list two reasons that Dr. Spock offers for not using physical punishment." While numerous statements throughout the article help satisfy the directive, much of the text deals with related concerns rather than direct summary statements. As a result, the reasons for not using physical punishment are embedded throughout the text and are not literally stated following a semantic cue such as "two good reasons for not using physical punishment are. . . ." In addition, distracting information is more closely tied to the words or phrases containing the necessary information for responding correctly.

PARENTING
BY BENJAMIN SPOCK, M.D.

Have You Ever Wanted To Strike Your Child?

Don't do it! Dr. Spock believes that physical discipline can cause lasting resentment in a sensitive child and may make a naughty child a real behavior problem.

Almost all parents with whom I've ever discussed the issue of physical punishment acknowledge that they've had a strong impulse to spank their children at one time or another, whether they believed in doing it or not: for instance, when a small child breaks a valuable object she has been told not to touch, or when a somewhat older child of six or seven runs into the street and a car just misses hitting him, or when an eleven-year-old is caught stealing and then brazenly tries to lie her way out of it. And it's the rare parent who has *never* given in to the impulse to slap or spank.

Parents tend to punish their children the same way their own parents punished them — whether it's by spanking or scolding or reasoning or withholding privileges. In this way patterns of discipline — both good and bad — are passed from one generation to the next.

Why is it that physical punishment, whether used occasionally or frequently, is still widely accepted as a way of teaching children what is right and what is wrong? I think there are two reasons for this. The first is the belief that it is simply the correct way of handling certain kinds of misbehavior, such as those I've mentioned earlier. The second reason is even more powerful, and it has to do with the parent's *reaction* to the misbehavior: the wave of anger that sweeps over the parent when a child misbehaves, *especially* when there is an element of defiance in an act or in an attitude. The child's challenge to the parent's authority causes a spasm of panic: If the parent doesn't act quickly and with force, the child might get the upper hand and, as a result, the parent might lose some control permanently. While I don't believe that a child should be able to get away with such deliberate misbehavior, I do believe there are other effective ways a parent can discipline his or her child without resorting to physical punishment.

You may wonder why I feel that other forms of discipline are preferable to physical punishment. What convinced me that spanking isn't necessary was that, in years of pediatric practice, I discovered there were many families in which the children were never spanked — and yet these children were cooperative, polite and kind. In some of these families the parents had not been physically punished in childhood, either. In others, the parents remembered the humiliation of being hit or spanked and were reacting to a conviction that the spankings they had received as children had had the wrong effect.

The reaction of the parents who don't spank their children because they themselves were spanked is worth considering because it raises the question of whether physical punishment does any harm. It is obvious that, when applied occasionally by loving parents, it can't do *much* harm — after all, millions of good men and women have been brought up in this way. But I think there are better ways of influencing children. When physical punishment is used frequently, especially by irritable or harsh parents, its unfavorable effects are noticeably multiplied. I believe physical punishment teaches children that might makes right and helps to turn some of them into bullies. Physical punishment leaves some sensitive children with a lasting resentment toward their parents for having humiliated them in this way. It encourages other children to feel that violence is not really bad and to think of physical force as a way of solving problems or settling disputes. As adults we know it is not an effective way of solving problems or settling disputes.

To me the most important reason for trying not to use physical punishment is that, if it is effective, it makes the child behave out of fear of the pain and out of fear of your anger. I think it's preferable for children to do the right thing because they love their parents and want to please them — not because they fear them. Then, as the children grow up, go to school, get jobs, marry and raise a family, they'll carry over this same attitude of getting along well in life by loving people, wanting to please them and cooperate with them — and receiving that love and cooperation in return.

What about other punishments parents can use, such as taking away a beloved toy for a day or so? To me, the loss of a privilege seems better than the indignity of being hit.

Isolating a child who is out of control has been used effectively in good day-care centers. Sending a child to his room for a given period of time works just as well at home, but isolation should be used in a calm, friendly spirit, as a way of helping the child to cool off.

To me, the best way of ensuring good behavior is for parents to show children love and respect — from infancy — and to set a good example. Then children look up to their parents and want to please them.

When parents shout and hit, they thwart a child's natural desire to please her parents, because the child's love and respect for them has been diminished. In the long run, that makes the parents' job of disciplining their children all the more difficult.

You may think your children would never respond to anything as mild as a good example or a polite request. If they have been used to rougher forms of discipline, I'll admit that they will seem insensitive at first to gentler methods. But they will gradually come around. I've seen the transformation take place in a day-care center, where a thick-skinned misbehaver began cooperating with a gentle teacher after he slowly learned that he could trust her to be kind to him.

One approach you could use to get the attention of a child who has learned to ignore anything but the most extreme forms of correction would be to go to her immediately when she misbehaves, put your arm around her and say quietly, "When you do that, it makes me unhappy. Please don't do it again!" If misbehavior is consistently corrected in this fashion, not only will the child learn that she can't persist in whatever it is that she's doing wrong, but, more importantly, she will come to enjoy a better relationship with you and the impulse to misbehave will diminish. Of course, it takes a good deal of patience for a parent to make the shift to this kind of gentle discipline. But the results are well worth the effort.

Although Dr. Spock cannot answer readers' letters individually, he will respond to them in his column. Please address your questions to Department DW, Redbook, 224 West 57th Street, New York, NY 10019.

Benjamin Spock: "Have You Ever Wanted to Strike Your Child?" Reprinted from *Redbook* by permission of the publisher.

Another task involving this text — at a somewhat lower level (283) — requires the reader to "list the two reasons given by the author why physical punishment is still widely accepted as a way to teach children right and wrong." In contrast to the task at the 311 level where the information is deeply embedded in the text without the advantage of semantic cues, this task can be answered by locating the place in the text that begins, "I think there are two reasons for this. The first is . . . . The second reason is . . . ."

The most difficult task (319) within this range requires the reader to synthesize the repetitive statements of an argument from a newspaper editorial in order to generate a theme or organizing principle. In this instance, the supporting statements are elaborated but widely separated in lengthy text.

Individuals who are estimated to score around 300 on the prose scale can be expected to perform these types of tasks successfully 80 percent of the time or better. The chance of responding correctly to tasks at or below the 225 level is high enough (about 98 percent) that they are likely to make few if any careless mistakes. Their chance of responding to tasks between the 226 and 275 levels is 90 percent or better. And, although respondents will likely have some success with tasks above the 325 level (i.e., at levels 4 and 5) on the prose scale, they would be expected to perform these more complex tasks with less consistency — about 50 percent of the time or less, depending on the task.

Level 4 326-375 JTPA 17.0%
Prose ES/UI 22.3%

Tasks at about the 350 level (326 to 375, level 4) still require respondents to search for information, but at this level the search requires multiple-feature matching involving synonyms or low text-based inferences. An example of this type of task (332) involves reading a magazine article on rules for financial security (see page 94). As detailed in the article, the reader is directed to list the types of child-care services that provide the employee with direct financial benefits. To respond correctly, the reader can use organizational aids in the text to locate the area dealing with the general topic. While locating the correct area of the text appears to be relatively easy, the difficulty of this task lies in determining what constitutes direct financial benefits.

The majority of the tasks in level 4, however, require integrating across text — sometimes by comparing and contrasting numerous pieces of information to determine similarities. For example, a task at the 346 level directs the reader to identify and list two similarities between the new and old ways American Express handles charge-card receipts.

Individuals who are estimated to score around 350 on this scale can be expected to perform successfully the types of tasks shown here, as well as others like them, 80

BY JANE BRYANT QUINN

MONEY FACTS

7 New Rules for Financial Security

In the last few years almost everything about economics in this country has changed. Jobs are less secure. Incomes are flat. Air pockets develop, suddenly causing a city or an industry to drop. Even prosperous industries feel the breath of uncertainty, as the international economic order changes before our very eyes. Any way you look at it, you're facing a New Financial Dispensation —one with very different rules for financial security than we followed in the past:

1. Save more money. This rule may sound fruitless to a generation that grew up during a period when a penny saved was a penny lost. In the seventies the value of savings actually *declined* after taxes and inflation, but today savings accounts make money. They've become more essential, too, so everyone should try to save at least 10 percent of income. Most middle-class families can do it if they try.

2. Borrow less. It used to make sense to buy now and pay later because prices were likely to rise tomorrow. And loans were easy to pay off because incomes went up. Not anymore. Average incomes are not rising, and loans are often hard to pay off. The cost of borrowing is high — and most of the interest you pay is no longer tax deductible. Your financial security depends on changing that borrow-and-spend mind-set that worked in the past.

3. Buy a house only when you're putting down roots. Prices will not rise as much in the future as they did in the past. Housing values have even declined in many cities. To have a shot at getting your money back (after real estate commissions) you have to stay in the house four years or more.

This rule has two corollaries: *Don't buy a condominium if you can avoid it.* They usually don't rise in value as much as single-family homes and can be almost impossible to resell in a soft housing market. *If you've moved and can't sell your old house, don't just walk away from it.* The default will ruin your credit rating — and the bank may still try to collect. Instead, you may be able to negotiate a "deed in lieu of foreclosure" in which your house is handed over to the lender in return for an agreement not to sue you for any difference between what you owe and what the lender receives from the resale. This usually won't show up on your credit record.

4. Don't count on an inheritance to make up the retirement fund you failed to save. People are living longer, and frail old age is consuming their savings. The trend today is for children to get their "inheritance" earlier — in the form of college tuition or help with a down payment on their first home.

5. Push for a child-care benefit at work. It's the next essential employee benefit, and women haven't made enough of a fuss to get it. But now that some of the workers having babies are vice-presidents, some corporations are beginning to provide a wide range of child-care services: 1. information for locating baby-sitters; 2. payments to day-care centers to subsidize costs for employees' children; 3. day-care centers at the work site; 4. benefit plans that provide day-care payments to employees as a tax-free subsidy; 5. emergency-care centers, where a child can be left when an employee's regular day-care arrangements fail; 6. discounts at a national day-care chain.

Research this issue at your library and organize a study group. Talk to your firm's employee-benefits office. What you do can make a difference.

6. Keep close track of how well your employer is doing and whether your job is really necessary. Large layoffs continue as industry after industry hits the brick wall of competition, overexpansion or overindebtedness. If your company is in trouble, look immediately for another job; the first workers to leave find more opportunities than the last.

Now that pensions are vesting faster — often in only five years — you don't lose as much by changing jobs. You may be able to take a lump-sum pension disbursement with you when you leave. If you do, be sure to roll it over into an Individual Retirement Account. That will lower your taxes as well as protect your future.

In general, it pays to look for a new job in the same field so you can build on your experience. If your whole industry is slimming down, however, it's smarter to develop expertise in another area. You might have to take a pay cut on entering a new field, but the job could be more lasting in the long run. The rule: Stay flexible and always be willing to retrain if necessary.

7. Buy life and health insurance only from a company rated A-plus by A.M. Best for the past five to ten years. The insurance industry is not as strong as it used to be. Some 17.5 percent of the companies reporting to the National Association of Insurance Commissioners now appear on its "watch list" because of various financial weaknesses. In 39 states and Puerto Rico, guaranty funds pay some or all claims if your insurance company fails. But in the others (Alaska, Arkansas, California, District of Columbia, Louisiana, Missouri, New Jersey, Ohio, South Dakota, Tennessee, Wyoming) you'd have nowhere to go if your insurer failed. Several firms already have gone under, leaving their clients high and dry. With a long-time A-plus company, you ought to be all right.

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percent of the time or better. These same individuals can be expected to successfully perform all of the preceding tasks on this scale with better than a 90 percent probability. This means that individuals demonstrating 350-level proficiency would be expected to respond correctly to at least nine out of ten tasks falling between the 150 and 325 levels. Moreover, although respondents will likely have some success with tasks above the 375 level on the prose scale, they would be expected to perform these more complex tasks with less consistency.

■

American Express' Way of Handling the Flood of Charge Card Receipts

How the new way stacks up against the old way

The New Way:

1 Image processing camera converts receipts to electronic digital image and paper receipts are discarded. **2** Digital image is scanned for account and invoice numbers by optical character (99% accuracy). In the future, computers will also read handwritten charge amounts. **3** Charge amounts are entered by computer operator from image displayed on computer screen. **4** Images are sorted electronically. **5** Bills, with images of receipts, are printed by laser and mailed to cardholders. **6** Images of receipts are stored permanently on optical discs.

The Old Way:

1 Paper receipts are microfilmed for **2** permanent storage, then **3** scanned for account and invoice number by optical character reader (82% accuracy). **4** Charge amounts are entered by computer operator from receipts. **5** A code containing all the information is printed on the receipts. **6** Paper receipts are sorted. **7** Bills are generated by mainframe computer. **8** Receipts and bills are joined and mailed.

■

Level 5	≥ 376	JTPA	4.6%
Prose		ES/UI	5.0%

A task (RP80=364) bordering on the next level ranging upward from 376 (level 5) requires the reader to generate a theme from very brief text using a single unfamiliar metaphor (a poem, see page 96). It appears that this task is difficult because it includes an unfamiliar metaphor with no repetition of the theme to assist the reader in interpretation.

■

What is the poet trying to express in this poem? _____

_____

_____

_____

The pedigree of honey
Does not concern the Bee —
A clover, any time, to him
Is Aristocracy — (Emily Dickinson)

■

Other tasks that reach or surpass 375 require the reader to search for information in dense text containing numerous plausible distractors, to make broad text-based inferences, and to compare and contrast numerous pieces of complex information to identify differences. Among these tasks is one using the passage shown earlier describing new and old ways of handling charge-card receipts. The task at this level requires the reader to contrast two differences between the new and old ways of processing these receipts.

Individuals at this highest level on the scale can be expected to perform successfully virtually all tasks contained in this assessment. They have demonstrated proficiency in locating, integrating, and generating information using a wide range of printed materials.

Profiling Proficiencies on the Prose Scale

Table 5.2 shows the percentages of JTPA and ES/UI eligible applicants estimated to score within each of the five prose proficiency levels just described. Percentages are shown for the total populations and for several demographic and background variables of interest. As shown in Table 5.2, there are no marked differences in the distributions of proficiencies on the prose scale. For example, about 13 percent from each DOL population are estimated to be performing in the range of level 1 tasks (at or below the 225 level). Since these individuals demonstrate proficiency only with prose tasks requiring literal, one-feature matches in short, relatively uncomplicated texts, it would seem that their literacy skills would place the most severe restrictions on full participation in our increasingly complex society. They are estimated to be able to perform consistently only about four tasks or 10 percent of the exercises represented on the prose scale. As noted in Table 4.4, they are performing at about the level of those individuals who report not attaining more than an eighth-grade education.

Table 5.2 The Percentages of JTPA and ES/UI Applicants Demonstrating Proficiencies at Each of the Five Levels Along the Prose Scale by Gender, Race/Ethnicity, Education, Labor Force Status, and Weeks of Employment*

PROSE

	JTPA					ES/UI				
LEVEL	1	2	3	4	5	1	2	3	4	5
	≤ 225	226-275	276-325	326-375	≥ 376	≤ 225	226-275	276-325	326-375	≥ 376
TOTAL	13.7 (1.7)	26.2 (1.7)	38.5 (2.1)	17.0 (0.9)	4.6 (0.7)	12.2 (2.4)	25.2 (1.3)	35.4 (1.3)	22.3 (1.6)	5.0 (0.6)
GENDER										
Male	19.4 (2.1)	26.5 (2.1)	35.9 (2.6)	14.9 (1.6)	3.3 (0.9)	14.3 (2.7)	25.0 (1.4)	34.2 (1.8)	21.7 (1.9)	4.8 (0.9)
Female	9.6 (1.5)	26.0 (1.8)	40.9 (1.9)	18.2 (1.4)	5.4 (1.1)	9.2 (2.0)	25.5 (1.6)	37.1 (1.6)	23.0 (1.7)	5.3 (1.0)
RACE/ETHNICITY										
White	9.7 (1.2)	23.6 (1.9)	41.1 (2.2)	19.9 (1.5)	5.7 (1.1)	3.7 (0.5)	18.5 (1.5)	40.1 (1.4)	29.9 (1.1)	7.9 (0.8)
Black	20.9 (4.0)	36.6 (3.0)	30.4 (3.7)	11.3 (1.5)	0.9 (0.4)	18.9 (4.7)	43.9 (2.3)	29.0 (2.9)	8.0 (1.1)	0.2 (0.2)
Hispanic	27.6 (4.6)	24.5 (5.5)	39.4 (5.5)	6.2 (2.2)	2.3 (2.3)	33.3 (5.6)	32.5 (6.0)	25.5 (2.9)	8.6 (1.8)	0.0 (0.0)
LEVEL OF EDUCATION										
0-8 Years	49.2 (5.0)	25.9 (3.8)	21.4 (4.3)	3.5 (2.3)	0.0 (0.0)	64.5 (9.6)	30.0 (8.5)	5.2 (3.6)	0.3 (0.3)	0.0 (0.0)
9-12 Years	22.6 (2.1)	43.9 (3.1)	26.9 (2.3)	5.8 (1.9)	0.8 (0.6)	30.9 (7.8)	37.4 (7.1)	24.7 (3.9)	6.8 (1.1)	0.2 (0.1)
H.S. Dip. or GED	8.5 (1.2)	20.8 (2.2)	47.9 (3.0)	18.4 (1.0)	4.4 (1.5)	9.6 (1.1)	28.6 (2.0)	41.6 (2.2)	18.4 (1.4)	1.8 (0.4)
Some Postsec.	3.7 (1.4)	18.5 (2.7)	42.6 (2.7)	28.7 (3.8)	6.4 (1.6)	5.3 (1.3)	22.3 (2.8)	38.6 (2.8)	29.3 (2.4)	4.5 (0.9)
College Degree	2.3 (2.2)	4.8 (2.0)	28.7 (10.3)	39.9 (7.5)	24.3 (6.7)	3.3 (1.5)	12.4 (1.8)	32.7 (2.3)	35.3 (2.2)	16.3 (2.3)
LABOR FORCE STATUS**										
Employed	10.2 (1.7)	21.1 (3.1)	38.6 (2.4)	21.5 (1.9)	8.5 (3.3)	9.9 (1.3)	24.7 (1.9)	35.4 (1.3)	24.1 (2.6)	6.0 (0.8)
Unemployed– Looking for Work	14.3 (2.6)	24.9 (3.1)	38.8 (3.8)	17.9 (1.7)	4.1 (0.9)	10.4 (2.4)	26.2 (2.8)	34.1 (2.6)	24.5 (1.8)	4.9 (1.3)
Out of Labor Force	14.9 (2.4)	29.6 (1.8)	38.3 (3.0)	14.1 (1.9)	3.0 (1.0)	17.5 (4.7)	24.6 (1.7)	37.0 (2.6)	17.2 (1.8)	3.7 (1.3)
WEEKS OF EMPLOYMENT***										
0-13	16.2 (2.2)	30.4 (2.9)	38.1 (2.9)	12.5 (1.6)	2.7 (0.9)	18.9 (5.9)	30.2 (2.7)	36.6 (4.2)	13.0 (2.1)	1.4 (0.4)
14-39	10.9 (1.7)	25.4 (2.6)	39.8 (3.6)	18.8 (3.3)	5.2 (1.9)	12.5 (2.5)	26.0 (2.8)	38.3 (3.0)	18.9 (2.4)	4.3 (0.9)
40+	7.7 (1.6)	20.0 (2.3)	40.5 (2.6)	24.2 (1.9)	7.6 (2.6)	9.8 (1.6)	23.5 (1.5)	33.9 (1.1)	26.4 (2.0)	6.4 (0.9)

* The numbers in parentheses are estimated standard errors.
** During the week prior to the assessment.
*** During the 12 months preceding the assessment.

Roughly one-fourth of the applicants in each of these populations is estimated to score in the level 2 range (226 to 275) on the prose scale. At this level, individuals can be expected to demonstrate more complex skills involving integration and generation of information and to consistently succeed on about one-third of the prose tasks in this assessment. The specific skills demonstrated, however, are limited to short, uncomplicated texts or texts containing numerous repetitions of an argument. Moreover, demonstrated proficiency in this range would still appear to be a limiting factor in terms of full participation in our society. In addition, again referring back to Table 4.4, these individuals are, on average, reading at about the level of those who report dropping out of school before earning a high school diploma.

As shown in Table 5.2, some 35 to 40 percent of the DOL populations demonstrate performance in the level 3 range (276 to 325). Such individuals demonstrate consistent success in dealing with literal or synonymous matching of information on more than a single feature or the integration of two pieces of information from fairly lengthy, dense texts that do not provide organizational or structural cues. These individuals can be expected to perform successfully on 70 percent of the prose tasks contained in this assessment. Although there is room for improvement, it is likely that these individuals are not encountering major difficulty in using the printed texts they encounter most frequently in their work and everyday lives. In fact, these individuals are performing at about the level of JTPA and ES/UI program participants who report earning a high school diploma or GED. It should be kept in mind that the two DOL populations may not be representative of the total national population of high school graduates.

Some 25 percent of the DOL populations demonstrate skills at or above level 4 (326 and above). While only about 5 percent attain level 5, as a group these individuals are succeeding on 90 percent or more of the tasks contained on the prose scale. These tasks require the reader to locate and integrate information from complex texts. The most challenging of these tasks require the reader to make broad text-based inferences or use specialized background knowledge. These skills are commensurate with individuals who report a two-year college degree or higher. The 20 to 30 percent of the DOL populations who demonstrate proficiencies at or above level 4 appear to represent an untapped resource.

The most interesting gender differences occur at level 1, which may help explain the mean performance difference noted in Table 4.1 That is, while only about 9 percent of females score at level 1 on the prose scale, some 15 to 20 percent of males are within this range. Among the labor market variables shown in Table 5.2, the interesting patterns of performance occur at the extreme levels. Individuals at levels 1 and 2 are more likely to report having been employed 13 or fewer weeks during the 12 months preceding the assessment than to have been employed 40 or more weeks. As is to be expected, this pattern reverses for individuals at levels 4 and 5 — that is, individuals demonstrating the highest levels of proficiency are significantly more likely to have been employed for 40 or more weeks than to have worked 13 or fewer weeks.

The distributions showing the greatest differences across the five levels are those defined by educational attainment and race/ethnicity. It is probably not surprising that within the two DOL populations the largest percentages of those falling in level 1 are adults who report zero to eight years of education. Conversely, the highest percentages associated with levels 4 and 5 are adults who report a college degree. For example, roughly half to two-thirds of the DOL populations with zero to eight years of education score within the level 1 range, whereas roughly 50 to 60 percent of those earning a college degree score within levels 4 and 5. What is most disturbing about

these data is the high percentages of JTPA and ES/UI participants reporting either a high school diploma or GED certificate who demonstrate literacy proficiencies in either level 1 or level 2. Some 30 to 40 percent of the two DOL populations demonstrate proficiencies within these levels.

Black and Hispanic program participants, while not consistently different from each other, are disproportionately represented at the low and high levels on the prose scale when compared with White program participants. As shown in Table 5.2, some 50 to 60 percent of Black and Hispanic JTPA and ES/UI program participants demonstrate proficiency at either level 1 or level 2 compared to 20 to 30 percent of White program participants. Conversely, while 8 to 12 percent of Black and Hispanic applicants demonstrate performance at levels 4 and 5 on the prose scale, some 25 to 40 percent of White applicants attain these higher levels. It may be worth noting that a significantly larger percentage of Hispanic ES/UI participants score within level 1 than do either Black or White ES/UI participants.

• *Document Literacy*

One important aspect of being literate in a technologically advancing society is possessing the knowledge and skills needed to process information found in documents (Kirsch & Mosenthal, 1990). Document literacy tasks require readers to locate and use information contained in materials such as tables, schedules, charts, graphs, maps, and forms. Skills needed to process these materials seem to involve strategies associated with locating information in complex arrays. Successful performance may be contingent upon procedural knowledge associated with transferring and entering information given in one source or document to another, such as the knowledge required to complete an application or an order form. Such tasks are not only important in our personal lives, but for many individuals, these tasks are also a necessary part of managing a household and meeting job requirements. In fact, research has shown that adults spend more time reading documents than any other type of material (Guthrie, Seifert, & Kirsch, 1986; Kirsch & Guthrie, 1984a).

The document literacy scale used in this assessment contains some 93 tasks that range from 90 to 470 on the scale. Questions and directives associated with these tasks are basically of three types: locating, cycling, and integrating. Locating tasks require readers to match one or more features of information stated in the question to either identical or synonymous information given in the document. Cycling tasks, although requiring the reader to locate and match one or more features, differ in that they require the reader to engage in a series of feature matches to satisfy the conditions given in the question. The integrating tasks typically require the reader to compare and contrast information in adjacent parts of the document.

As with the prose tasks, tasks of each type of question or directive extend over a range of difficulty as a result of interactions among several variables or task characteristics that include:

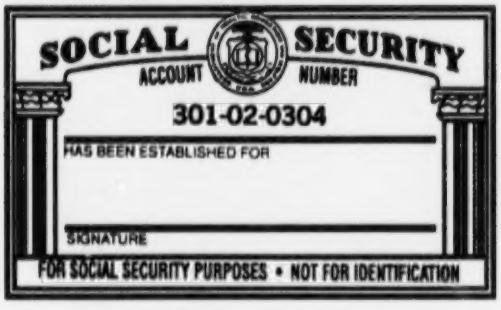
- the number of categories or features of information in the question that the reader has to process
- the number of categories or features of information in the text that can serve as distractors or plausible answers
- the degree to which the information asked for in the question has less obvious identity with the information stated in the document
- the structure of the document

Characterizing Levels of Proficiency on the Document Scale

The following discussion highlights some of the tasks along the document scale and describes how their relative positions along the scale seem to reflect various combinations of the variables mentioned above. Throughout the discussion, the numbers associated with specific tasks refer to the point on the scale at which the task is located, based on an RP80 criterion. The heading separating each level provides the percentages of the total JTPA and ES/UI populations estimated to be performing at this level.

Level 1 ≤ 225 JTPA 14.1%
Document ES/UI 13.1%

Tasks falling at or below the 225 level (within the level 1 range) on this scale typically require the reader to make a one-feature, literal match between information stated in the question and information provided in the document. In some instances, the question or directive asks for personal background information that must be entered into an appropriate location on the document. For example, the simplest task on this scale (RP80=90) directs the reader to "Look at the Social Security card. Sign your name on the line marked signature." Several characteristics combine to make this task easy. First, it may be assumed that the information requested (one's own name) is known. Second, there is only one category or feature of information that must be provided. Third, there is only one place on the document where the reader may respond.



Tasks within this level that are more difficult than signing the Social Security card require matching a single piece of information or feature from the question or directive with information in the body of the document. Several tasks that were developed around a form used in setting up a meeting require the reader to locate specific information, as opposed to entering known, personal background information. For example, the reader must supply information that is given on the form regarding the time and date of a meeting — RP80 values of 180 and 183, respectively. Each of these two tasks requires the reader to match a single, literal feature from the form that contains no distracting information — i.e., only a single reference is made in the document to date or time.

Document tasks in this range become more difficult as the task characteristics described above combine with one another. For instance, some tasks at this level require the reader to match a single, literal feature in documents that contain one or two distractors or plausible answers. A task at the 198 level, for example, directs the reader to circle the cost for a ticket and bus trip to see "On the Town." Although the reader simply locates the line labeled "price" and circles the dollar amount associated with "On the Town," the cost given in the document for "Sleuth" can serve as a distractor.

THEATER TRIP

A charter bus will leave from the bus stop (near the Conference Center) at 4 p.m., giving you plenty of time for dinner in New York. Return trip will start from West 45th Street directly following the plays. Both theaters are on West 45th Street. Allow about 1 1/2 hours for the return trip.

Time:	4 p.m., Saturday, November 20		
Price:	"On the Town"	Ticket and bus	$11
	"Sleuth"	Ticket and bus	$8.50
Limit:	Two tickets per person		

Another instance of the ways in which task characteristics combine to increase task difficulty involves the completion of a section of a job application form. As with signing the Social Security card, the task is to provide single pieces of personal information. This time, however, to satisfy the directive, the respondent must provide several pieces of information through a series or cycle of one-feature matches. As a result of the need to cycle through the document several times, this particular task is found at the 218 level.

■

1. You have gone to an employment center for help in finding a job. You know that this center handles many different kinds of jobs. Also, several of your friends who have applied here have found jobs that appeal to you.

   The agent has taken your name and address and given you the rest of the form to fill out. Complete the form so the employment center can help you get a job.

   Birth date_____ Age____ Sex: Male____ Female____

   Height_____ Weight_____ Health_____

   Last grade completed in school_____

   Kind of work wanted:

   Part-time_____ Summer_____

   Full-time_____ Year-round_____

■

Another cycle task falling at about this same level (RP80=205) directs the reader to look over a list of food to buy and then, using an advertisement from a supermarket, circle four things on the list for which there are savings coupons. Again, to respond correctly, the reader makes four, one-feature matches between the shopping list and the printed set of coupons.

Individuals who are estimated to be performing in this range on the scale demonstrate proficiency at entering personal background information onto clearly identified or structured forms and locating single pieces of information with or without distractor information present. Individuals estimated to be performing around the 200 level can be expected to perform these types of tasks successfully across a broad range of rather uncomplicated documents with a high degree of consistency — that is, about 80 percent of the time. While they can also demonstrate skill at using other documents involving tasks requiring more complex processing of information, their chances for success on these tasks drop to about 50 percent or less, depending on the task.

Level 2 226-275 JTPA 37.3%
Document ES/UI 30.1%

Tasks at the next range of complexity (226 to 275, or level 2) on the scale still require the reader to match on a single feature; however, there is a tendency for several distractors to be present or for the match (rather than being literal) to be based on synonymous or text-based inferences. One such task at the 234 level directs the reader to look at the pediatric dosage chart and underline the sentence that indicates how often the medication may be administered. To respond successfully, the reader needs to associate the word "administered" in the directive to the word "given" in the document by looking at information outside the table itself.

■

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Pediatric Dosage Chart Drops, Syrup, & Chewables

Age	Approximate Weight Range*	Dosage			
		Drops	Syrup	Chewables 80 mg	Chewables 160 mg
† Under 3 mo	Under 13 lb	½ dropper	¼ tsp	—	—
† 3 to 9 mo	13-20 lb	1 dropper	½ tsp	—	—
† 10 to 24 mo	21-26 lb	1 ½ droppers	¾ tsp	—	—
2 to 3 yr	27-35 lb	2 droppers	1 tsp	2 tablets	—
4 to 5 yr	36-43 lb	3 droppers	1 ½ tsp	3 tablets	1 ½ tablets
6 to 8 yr	44-62 lb	—	2 tsp	4 tablets	2 tablets
9 to 10 yr	63-79 lb	—	2 ½ tsp	5 tablets	2 ½ tablets
11 yr	80-89 lb	—	3 tsp	6 tablets	3 tablets
12 yr and older	90 lb & over	—	3-4 tsp	6-8 tablets	3-4 tablets

† Consult with physician before administering to children under the age of 2 years.

Dosage may be given every 4 hours as needed but not more than 5 times daily.

How Supplied:

Drops: Each 0.8 ml dropper contains 80 mg (1.23 grains) acetaminophen.

Syrup: Each 5 ml teaspoon contains 160 mg (2.46 grains) acetaminophen.

Chewables: Regular tablets contain 80 mg (1.23 grains) acetaminophen each. Double strength tablets contain 160 mg (2.46 grains) acetaminophen each.

* If child is significantly under- or overweight, dosage may need to be adjusted accordingly.

The weight categories in this chart are designed to approximate effective dose ranges of 10-15 milligrams per kilogram.

(Current Pediatric Diagnosis and Treatment. 8th ed. CH Kempe and HK Silver, ed. Lange Medical Publications. 1984. p. 1079.)

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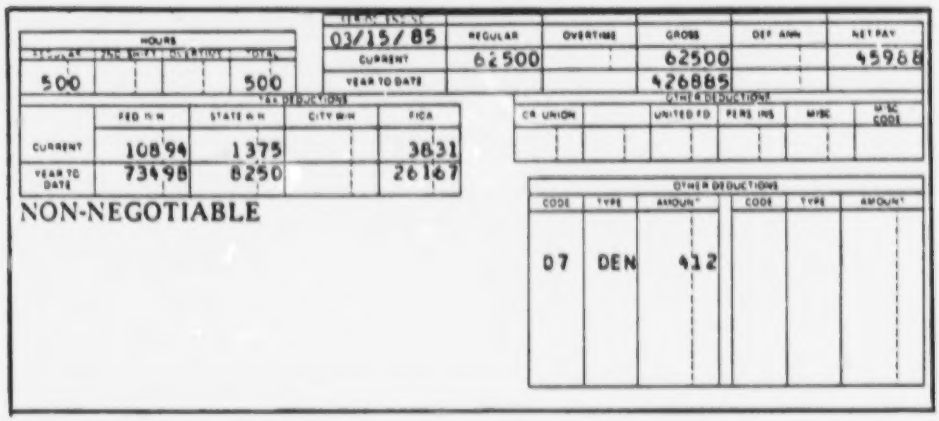
■

Other tasks falling in the level 2 range (from 226 to 275) on the document scale require the reader to either match on the basis of two categories of information with distractors present, or compare information on a similar feature across different but adjacent parts of a document. In the first instance, a task at the 261 level directs the reader to look at a pay stub summarizing wage information. The reader is asked to write the "gross pay for this year to date."

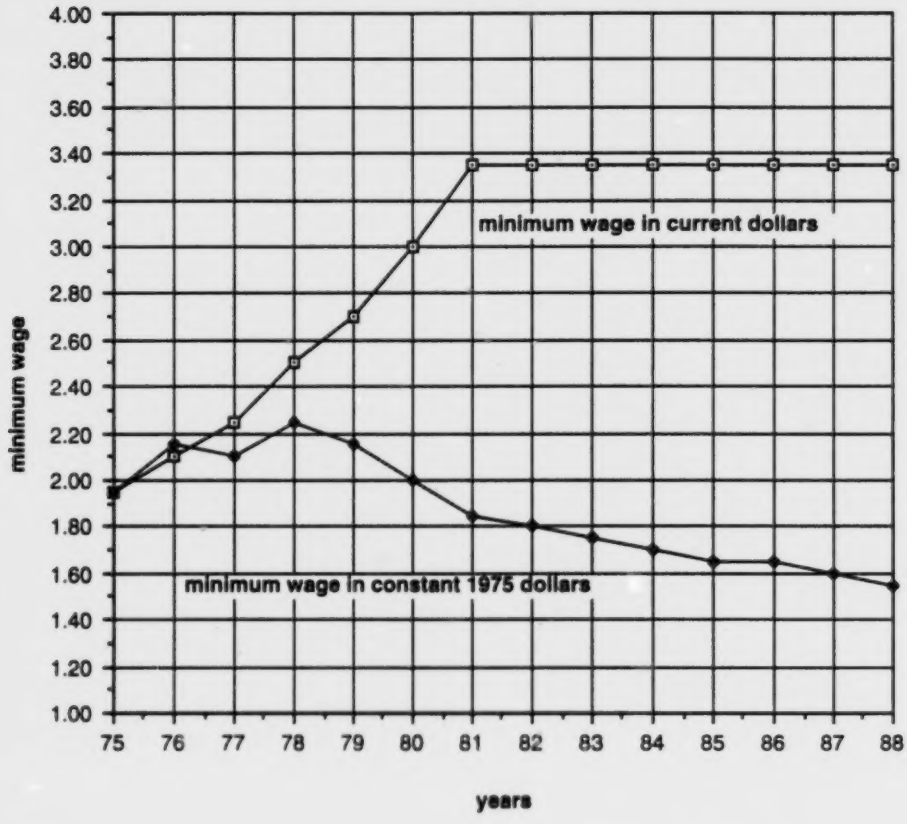
■



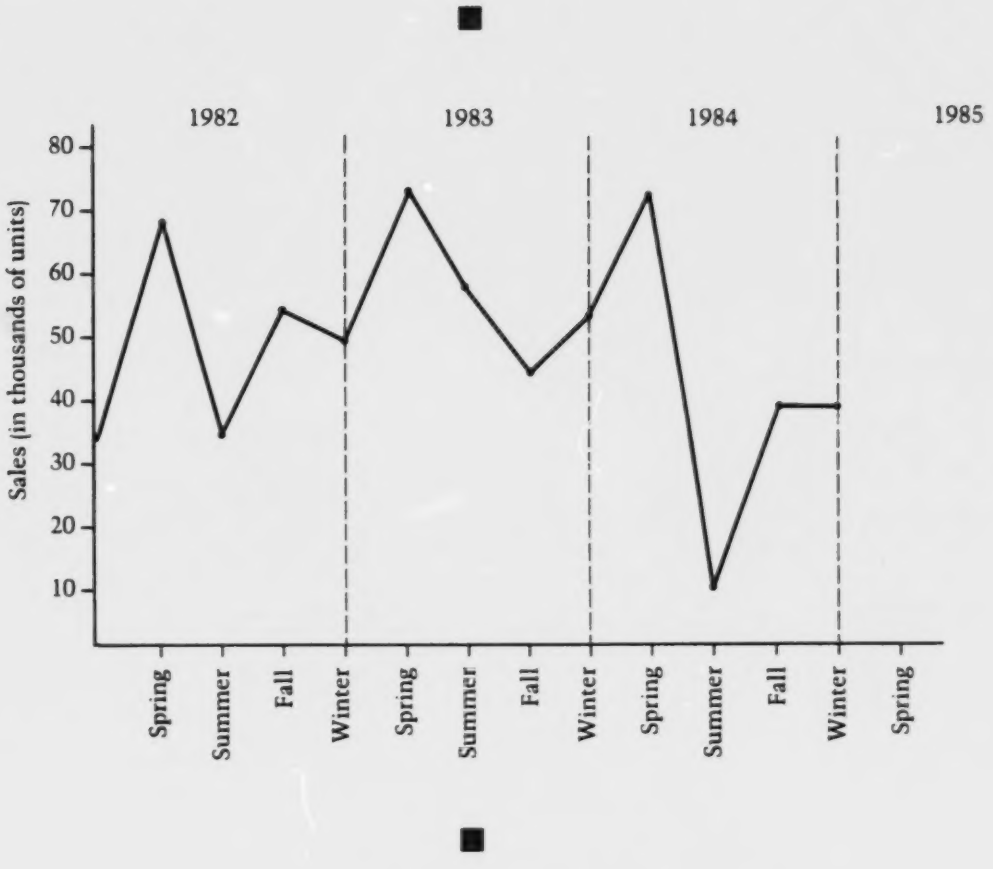
■

If the reader fails to match on both categories — gross pay and year to date — he or she is likely to provide an incorrect amount, such as $625.00 if the match is on the category "gross," or $261.67 if the match involves only the category "year to date." The other type of task — where the reader needs to compare information — is demonstrated by a line graph (see page 105) depicting the purchasing power of the minimum wage in current and constant dollars.

PURCHASING POWER OF MINIMUM WAGE



The question asks the reader to determine, based on constant 1975 dollars, the year in which the minimum wage exceeded $2.20 an hour. To respond correctly to this task at the 260 level, the reader either needs to look along the line representing $2.20 and then check down the column for 1978, the only year in which the line for constant dollars exceeds $2.20, or to identify the line representing constant 1975 dollars and then compare the various points to determine where the line exceeds $2.20. A similar kind of task, also at this level (RP80=268), directs the reader to look at another line graph (see page 106) showing a company's seasonal sales over a three-year period. The question asks the reader to predict the level of sales for the spring of the following year based on the graph's pattern.



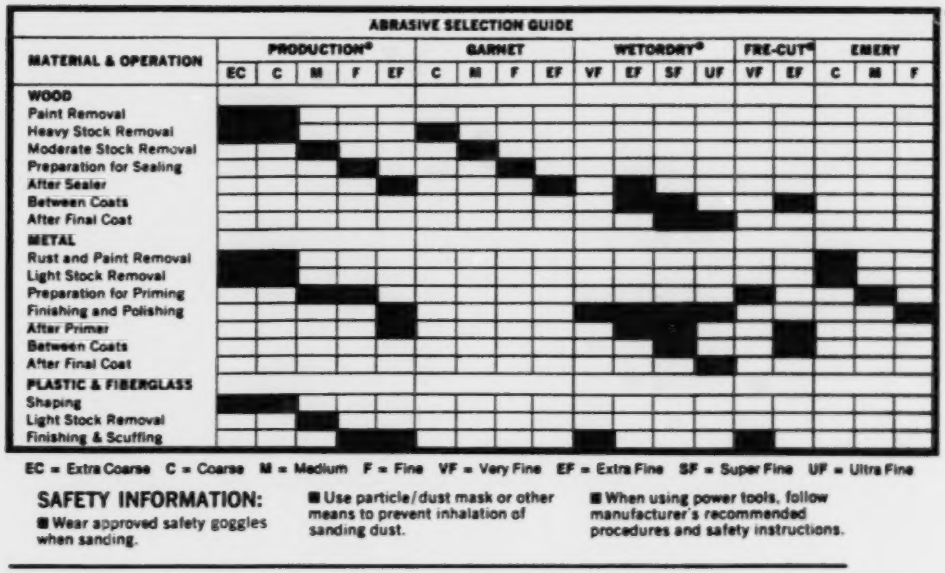
Individuals who are estimated to be in the score range of level 2 on the document scale can perform the types of locate and integrate tasks described and shown here about 80 percent of the time. Their proficiency at performing tasks up to the 225 level exceeds 90 percent. Again, such individuals will demonstrate some successes with tasks at higher levels on the scale — above the 275 level — but will do so, on average, around half the time or less, depending on the tasks.

Level 3 276-325 JTPA 35.4%
Document ES/UI 35.9%

Tasks falling around the 300 level (between 276 and 325, or level 3) continue to require the reader to locate and integrate information. Tasks at this level, however, tend to involve the matching of more than two features of information in more complex displays of information. In these complex displays, distractors are typically present within the same row or column as the correct answer. One task at the 306 level directs the reader to use a table containing nested information to determine the type of sandpaper to buy if one needs "to smooth wood in preparation for sealing and

plans to buy garnet sandpaper." This task requires matching not only on more than a single feature of information but also on features that are not always superordinate categories. For example, "preparation for sealing" is subordinated or nested under the category "wood," while the type of sandpaper is under the main category or heading of "garnet." In addition, there are three other types of sandpaper that the reader might select that partially satisfy the question.

■



ABRASIVE SELECTION GUIDE

MATERIAL & OPERATION	PRODUCTION®					GARNET				WETORDRY®				FRE-CUT®		EMERY		
	EC	C	M	F	EF	C	M	F	EF	VF	EF	SF	UF	VF	EF	C	M	F
WOOD																		
Paint Removal	■	■																
Heavy Stock Removal						■												
Moderate Stock Removal			■				■											
Preparation for Sealing				■				■										
After Sealer					■				■									
Between Coats											■	■			■			
After Final Coat												■	■					
METAL																		
Rust and Paint Removal	■	■														■		
Light Stock Removal			■	■													■	
Preparation for Priming					■													■
Finishing and Polishing										■	■	■	■					
After Primer												■			■			
Between Coats													■					
After Final Coat																		
PLASTIC & FIBERGLASS																		
Shaping	■	■																
Light Stock Removal			■															
Finishing & Scuffing				■	■					■				■				

EC = Extra Coarse C = Coarse M = Medium F = Fine VF = Very Fine EF = Extra Fine SF = Super Fine UF = Ultra Fine

SAFETY INFORMATION:

■ Wear approved safety goggles when sanding.

■ Use particle/dust mask or other means to prevent inhalation of sanding dust.

■ When using power tools, follow manufacturer's recommended procedures and safety instructions.

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■

A similar type of task in level 3 (RP80=309) requires the reader to select one of two tables showing the value of bonds based on monthly savings rate, age, and interest level (see page 108). The task directs the respondents to identify how much money they would need to save each month for investment in 10 percent bonds to ensure that by age 18 their newborn child would have at least $55,000 to cover estimated education costs.

HIGH INTEREST
U.S. Savings Bonds

HOW DOLLARS FOR EDUCATION CAN GROW:

...at 7.5% (guaranteed minimum)

Child's Age Now	Value of Bonds at Age 18 through Monthly Savings of $25	$50	$100
Birth	$11,092.22	$22,184.44	$44,368.88
6	5,682.14	11,364.28	22,728.56
12	2,203.94	4,407.88	8,815.76

...at 10% (sample market-based rate)

Child's Age Now	Value of Bonds at Age 18 through Monthly savings of $25	$50	$100
Birth	$14,358.32	$28,716.64	$57,433.28
6	6,593.28	13,186.56	26,373.12
12	2,269.10	4,538.20	9,076.40

If you begin saving just $25 a month at your child's birth, and the market-based rate averages 10% over the life of your Bonds, your child will have $14,358.32 at age 18 — just in time for college!

BUILD YOUR RETIREMENT SAVINGS:

You'll benefit from two options:

1. You can cash Bonds to supplement your retirement income, reporting the tax-deferred interest as income on your Federal taxes. You'll probably be in a lower tax bracket — and if you're over 65, your double exemption means even more money to enjoy.
2. Or you can continue deferring Federal taxes by exchanging your Series EE Bonds, Series E Bonds, and Savings Notes for Series HH Bonds, which pay you interest semiannually by Treasury checks. You don't have to pay tax on the accumulated interest on your exchanged Bonds until the HH Bonds are cashed or reach final maturity. This way, you keep your principal intact, have a steady income for 10 years, and — when the HH Bonds are cashed — the tax will be levied at your lower post-retirement rate.

NOTE: Series EE Bonds, Savings Notes, and most Series E Bonds will receive market-based rates (or their current guarantees, if higher) when held until November 1, 1987 or longer. Series E Bonds that reach their 40th anniversary before then will receive their present guaranteed yield to final maturity, but aren't eligible for the market-based rates. Bonds issued before April 1952 stop earning interest exactly 40 years after their issue date and should be converted to HH Bonds or redeemed.

Biweekly Savings	At 5 Years 7.5%	At 10 Years 7.5%	10%
$ 3.75	$ 573.27	$ 1,408.17	$ 1,570.49
6.25	957.55	2,356.91	2,633.95
12.50	1,920.00	4,727.96	5,286.86
25.00	3,846.04	9,469.92	10,597.26
50.00	7,692.08	18,939.84	21,194.52
100.00	15,384.16	27,879.68	42,389.04

Monthly Savings	At 5 Years 7.5%	At 10 Years 7.5%	10%
$ 6.25	$ 434.70	$ 1,074.00	$ 1,196.90
12.50	874.52	2,161.04	2,411.42
25.00	1,759.34	4,348.46	4,863.34
50.00	3,518.68	8,696.92	9,726.68
100.00	7,037.36	17,393.84	19,453.36

The longer you hold your Bonds, the faster your money grows. Join your Payroll Savings Plan today — and watch *your* savings grow!

U.S. Savings Bonds

Individuals who are estimated to be in level 3 on the document scale demonstrate proficiency at doing these more complex tasks with a high degree of consistency — around 80 percent. In addition, they can be expected to perform some of the less complex tasks more than 90 percent of the time and the least complex tasks (at or below 225) with few if any careless mistakes. As noted before, they will also demonstrate some success with higher-level tasks, although their consistency in performing these tasks will not, on average, exceed 50 percent.

Level 4 326-375 JTPA 12.2%
Document ES/UI 18.5%

The tasks near the 350 level on the document scale (between 326 and 375, or level 4) continue to demand more from the reader. Not only is proficiency needed in multiple-feature matching and the integration of information from complex displays as in level 3, but the degree of inferencing required by the reader increases by level 4 as well. For example, a task (RP80=327) that borders on the previous level directs the reader to use the pediatric medicine dosage chart shown earlier in this section. This particular task directs the reader to determine from the chart how much syrup is recommended for a child who is 10 years old and weighs 50 pounds. The difficulty of this task lies in the fact that one cannot simply match literal or synonymous information to perform successfully since the weight as given in the question is less than that of the typical 10-year-old in the table. Instead, one must rely on prior knowledge or find the asterisked note relating to the column headed "Approximate Weight Range" that the correct dosage is to be based on weight (not age) to ensure that the child receives an effective dose. In any event, if the reader approaches this task as a single literal match, the age of the child acts as a highly plausible distractor and serves to lead one to an incorrect response.

A more difficult task at the 364 level asks the reader to use charts and numerical entries that are part of a monthly bill from El Paso Gas and Electric. The reader is directed to write a brief statement describing how the customer's current month's use of kilowatt-hours compares with the average residential customer's use during the same month. Only the requisite portion of the bill is reproduced on the next page. The reader's task was made substantially more difficult since the assessment instrument included two full pages of information constituting the actual monthly bill. The reader needs to identify the appropriate bar graph from among several presented and then integrate information to provide an appropriate response.

Individuals who perform in the level 4 range on the document scale are estimated to demonstrate performance on more than 85 percent of the document tasks contained in this assessment with at least an 80 percent chance of success.

EL PASO GAS & ELECTRIC

Account number:
0320 1234 567 891 0

8382

PAMELA B. MORGAN
3120 CROSS ST.
EL PASO, TX 79924

Next meter reading:
Wednesday, Sep. 7, 88

Electric Service

This meter reading, Aug. 8, 88 (actual)			05877
Last meter reading, July 8,88 (actual)		–	05524
Amount of electricity used	KWH		353

Current charges for 31 days - residential service (Rate 1)

Basic service charge (not including usage)	$	6.06
Charge for 353 KWH @ 6.9065 c each KWH	+	24.38
Fuel adjustment @ .1526 c each KWH	+	.54
Power purchase credit @ .0187 c each KWH	–	.07
Total cost for electric service	**$**	**30.91**

Gas Service

This meter reading, Aug. 8, 88 (actual)			3355
Last meter reading, July, 8, 88 (actual)		–	3334
Amount of gas used	CCF		21
Conversion to therms @ 1.02843 each CCF			22

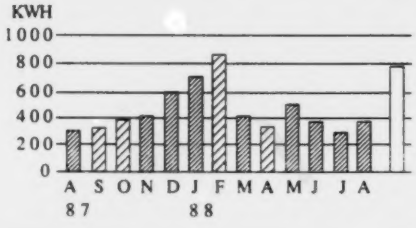
Current charges for 31 days - residential service (Rate 1)

Basic service charge (first 3.10 therms)	$	5.80
Next 18.90 therms @ 66.8783 c each therm	+	12.64
Gas refund credit	–	.24
Gas adjustment @ 7.5492 c each therm	–	1.66
Total cost for gas service	**$**	**16.54**

Your energy use and cost

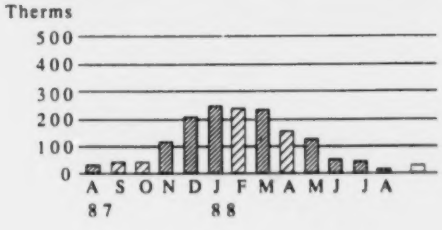
▨ = *Actual reading*
▨ = *Estimated reading*
▥ = *Customer reading*
□ = *Average customer*

These charts show your energy use pattern over the last 13 months. They also show the current month's usage by our average residential customer.



Daily Averages:

	Last year	This period
Temp	74°	76°
KWH	10.3	11.4
Cost	$ .89	1.00
Therms	1.0	.7
Cost	$ .70	.53



Level 5 ≥ 376	JTPA 1.1%
Document	ES/UI 2.4%

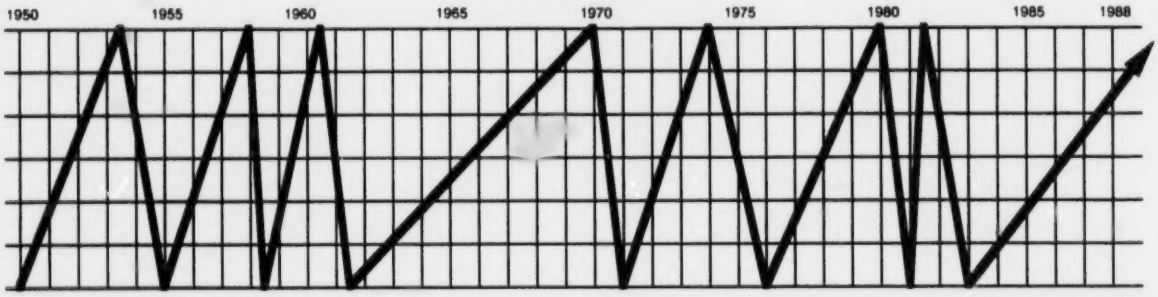
Tasks above 375 (or in level 5) on this scale require readers to make broad text-based inferences or require specialized background knowledge that may involve using multiple documents. For example, one task (RP80=386) directs the reader to locate the line graph depicting business cycles from among four graphs shown (see page 112) and to identify the periods that represent the longest and shortest economic recoveries. To respond correctly, readers need to process printed information under the graph in order to identify the appropriate graph and, in addition, to identify which lines represent economic recoveries. They must then compare this information with the lines provided in the graph to determine which periods represent economic recoveries. Then the reader must determine the longest and shortest and associate these with the specified time periods.

Individuals who are estimated to be performing at this highest level on the document scale demonstrate a broad range of skill at being able to process information with a high degree of consistency using a wide range of document materials that are drawn from various adult contexts. The tasks along the document scale range from those that require the reader to provide simple background information or to match on a single feature in simple well-labeled documents, to tasks that require the reader to use inferencing skills or background knowledge in connection with more complex displays in which information is embedded or not well identified.

Profiling Proficiencies on the Document Scale

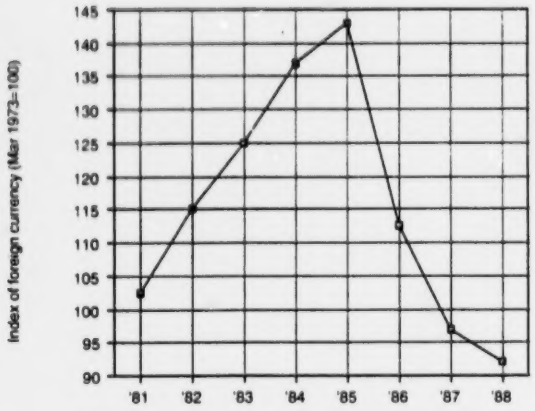
Table 5.3 shows the percentages of JTPA and ES/UI eligible applicants estimated to score within each of the five document proficiency levels just described. Percentages are shown for the total populations and for several demographic and background variables of interest. Table 5.3 shows there are no marked differences in the distributions of proficiencies on the document scale. For example, 13 to 14 percent are estimated to be performing in the range of level 1 tasks (less than 226). Since these individuals demonstrate proficiency with document tasks requiring either entering personal background information or making a literal one-feature match, it would seem that their literacy skills would place the most severe restrictions on their full participation in our increasingly complex society. They are estimated to be able to perform consistently about 25 percent of the exercises represented in this assessment on the document scale. In addition, referring to Table 4.4, they are performing at or below the average level of those individuals who report not attaining more than an eighth-grade education.

Spotlight Economy



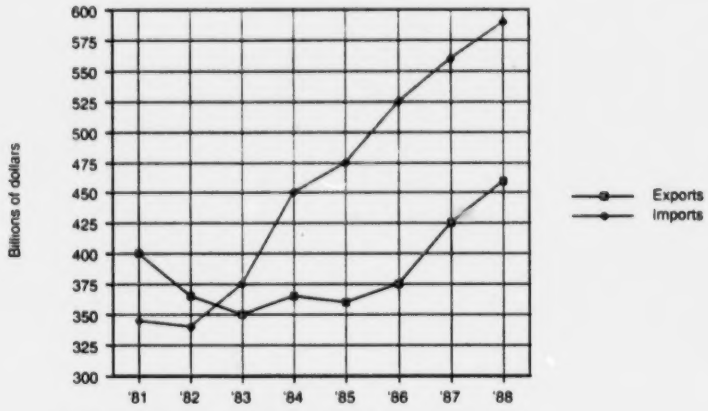
Business Cycles: From trough to peak, the current expansion is the second-longest economic recovery in post-war history.
Source: Data provided by Grace Messner, vice president and director of research, Wilmington Trust Co., and economist Richard Stuckey

The dollar vs. foreign currency



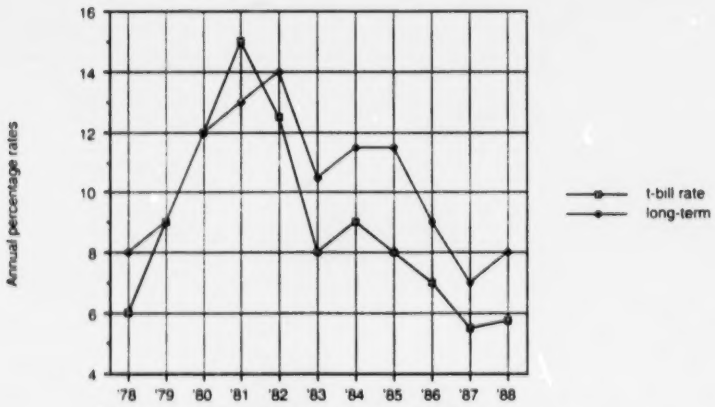
From 1981 to 1985, the dollar climbed sharply against the currencies of 10 industrialized countries before beginning its descent to 1988 levels.

U.S. imports, exports



U.S. exports have trailed imports by a wide margin since 1982 when the strength of the dollar first began to boost the cost of American goods on world markets.

Interest rates



Short-term rates such as the three-month Treasury bill rate have not gone above the long-term rates on such instruments as 10-year bonds since the last recession.

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Roughly one-third of the applicants in each of these populations is estimated to score in the level 2 range (226 to 275) on the document scale. At this level, individuals can be expected to locate information based on more than one feature. Tasks at this level also begin to require the reader to compare and contrast information. Individuals scoring in level 2 demonstrate a broader set of information-processing skills in that they can be expected to perform consistently about 60 percent of the document literacy tasks contained in this assessment. However, those with demonstrated proficiency in the level 2 range would still appear to be limited in terms of their full participation in our society. Moreover, referring back to Table 4.4, these individuals are, on average, reading at about the level of individuals in the DOL populations who report dropping out of school before earning a high school diploma.

As shown in Table 5.3, roughly 35 percent of the DOL populations demonstrate performance in the level 3 range. Such individuals demonstrate consistent success in dealing with three or more features of information from rather complex tables or graphs in which distracting information is present in the same row or column. These individuals can be expected to perform successfully on some 85 percent of the document tasks contained in this assessment. Although there is room for improvement, it is likely that these individuals are not experiencing major difficulty in using documents they encounter most frequently in their work and everyday lives. In fact, these individuals are performing at or above the level of JTPA and ES/UI program participants who report earning a high school diploma or GED.

Some 15 to 20 percent of the DOL populations demonstrate skills at or above the level 4 range. While less than 3 percent of the DOL populations attain level 5, as a group, these individuals are expected to perform consistently some 92 percent of the tasks contained on the document scale. Moreover, these tasks require the reader to locate and integrate information from complex texts. The most challenging of these tasks require the reader to make broad text-based inferences or use specialized background knowledge to contrast information. These tasks are above the average proficiency levels of individuals who report a two-year college degree or higher.

The most interesting differences among the labor market variables shown in Table 5.3 again occur at the extreme levels. Individuals at level 1 are more likely to report having been employed 13 or fewer weeks during the 12 months preceding the assessment than to have been employed 40 or more weeks. As to be expected, this pattern reverses for individuals at levels 4 and 5 — that is, individuals demonstrating the highest levels of proficiency are significantly more likely to have been employed for 40 or more weeks than to have worked 13 or fewer weeks. There are no stable patterns associated with an individual's labor market status during the week prior to the assessment (that is, the categories of employed, unemployed — not employed but looking for work and, hence, considered to be in the labor force — and out of the labor force).

Table 5.3 The Percentages of JTPA and ES/UI Applicants Demonstrating Proficiencies at Each of the Five Levels Along the Document Scale by Gender, Race/Ethnicity, Education, Labor Force Status, and Weeks of Employment*

DOCUMENT

	JTPA					ES/UI				
LEVEL	1	2	3	4	5	1	2	3	4	5
	≤ 225	226-275	276-325	326-375	≥ 376	≤ 225	226-275	276-325	326-375	≥ 376
TOTAL	14.1 (2.0)	37.3 (1.3)	35.4 (1.5)	12.2 (1.8)	1.1 (0.4)	13.1 (1.6)	30.1 (1.2)	35.9 (1.0)	18.5 (1.7)	2.4 (0.5)
GENDER										
Male	17.8 (2.6)	33.0 (2.1)	35.8 (2.7)	12.9 (2.0)	0.5 (0.4)	15.2 (2.2)	30.1 (1.8)	33.7 (1.5)	18.2 (2.5)	2.9 (0.8)
Female	11.1 (1.5)	40.0 (1.5)	35.5 (1.7)	11.8 (1.9)	1.5 (0.7)	10.3 (1.6)	30.3 (1.4)	38.6 (2.4)	19.0 (2.2)	1.8 (0.4)
RACE/ETHNICITY										
White	8.4 (1.2)	33.9 (1.8)	40.3 (1.7)	15.8 (2.1)	1.6 (0.5)	4.6 (0.7)	24.7 (1.5)	41.4 (1.1)	25.7 (1.3)	3.6 (1.1)
Black	26.7 (4.0)	47.4 (2.4)	23.6 (2.6)	2.3 (1.2)	0.0 (0.0)	28.6 (4.4)	46.8 (5.2)	22.0 (3.1)	2.6 (0.7)	0.0 (0.0)
Hispanic	26.2 (5.2)	46.4 (5.3)	20.9 (5.3)	6.4 (3.8)	0.1 (0.1)	31.1 (3.2)	37.8 (1.1)	25.7 (3.9)	4.7 (3.7)	0.7 (0.7)
LEVEL OF EDUCATION										
0-8 Years	42.7 (4.0)	44.1 (4.8)	12.3 (4.2)	0.3 (0.3)	0.0 (0.0)	65.1 (11.5)	22.6 (5.8)	12.0 (9.6)	0.4 (0.4)	0.0 (0.0)
9-12 Years	26.4 (3.8)	45.5 (2.2)	24.8 (4.3)	3.4 (1.2)	0.0 (0.0)	32.9 (3.4)	38.0 (2.0)	25.7 (3.0)	3.3 (1.2)	0.1 (0.1)
H.S. Dip. or GED	8.1 (1.3)	35.3 (1.8)	41.3 (1.7)	14.0 (2.3)	1.2 (0.8)	11.2 (1.1)	36.1 (2.0)	37.2 (2.1)	14.1 (1.6)	1.4 (0.3)
Some Postsec.	3.9 (0.9)	34.4 (3.1)	43.7 (2.8)	16.8 (2.3)	1.1 (0.6)	5.6 (1.2)	27.4 (1.2)	39.8 (3.1)	25.2 (2.5)	2.0 (0.6)
College Degree	0.0 (0.0)	12.9 (5.0)	41.2 (5.7)	39.7 (7.1)	6.1 (2.9)	3.6 (1.4)	17.7 (2.2)	39.1 (5.8)	32.5 (2.7)	7.1 (3.3)
LABOR FORCE STATUS**										
Employed	8.9 (1.5)	36.1 (4.7)	36.2 (2.8)	17.3 (3.1)	1.6 (1.0)	9.5 (1.3)	28.0 (2.0)	36.1 (1.2)	22.9 (2.5)	3.6 (0.6)
Unemployed–Looking for Work	13.8 (2.4)	38.0 (2.4)	33.3 (2.0)	13.5 (2.2)	1.4 (0.9)	13.2 (1.7)	30.1 (2.0)	36.3 (1.4)	18.3 (1.9)	2.2 (0.9)
Out of Labor Force	16.8 (3.3)	37.3 (1.9)	36.5 (2.4)	8.8 (1.6)	0.6 (0.3)	17.9 (2.9)	32.9 (3.1)	35.1 (2.9)	12.9 (1.9)	1.1 (0.5)
WEEKS OF EMPLOYMENT***										
0-13	18.5 (2.6)	40.3 (2.4)	32.4 (1.3)	8.4 (2.6)	0.4 (0.2)	21.6 (2.6)	29.3 (3.9)	35.9 (2.8)	12.7 (3.4)	0.5 (0.1)
14-39	9.4 (1.8)	37.0 (2.2)	39.8 (3.4)	12.5 (1.8)	1.3 (1.0)	14.4 (3.0)	34.7 (2.8)	32.9 (2.0)	16.3 (2.6)	1.6 (0.5)
40+	7.6 (1.5)	33.3 (4.2)	37.1 (2.3)	19.9 (3.5)	2.1 (0.6)	10.0 (1.2)	28.1 (1.1)	37.4 (1.5)	21.2 (1.4)	3.4 (0.8)

* The numbers in parentheses are estimated standard errors.

** During the week prior to the assessment.

*** During the 12 months preceding the assessment.

The distributions showing the greatest differences across the five levels are those defined by educational attainment and race/ethnicity. It is probably not surprising that within the two DOL populations the largest percentages of those falling in level 1 are adults who report zero to eight years of education. Conversely, the highest percentages associated with levels 4 and 5 are adults who report a college degree. For example, roughly 40 percent of JTPA and 65 percent of ES/UI program participants with zero to eight years of education score within the level 1 range on the document scale, whereas roughly 40 to 50 percent of those earning a college degree score within levels 4 and 5.

What is disturbing about these data is the high percentage of JTPA and ES/UI participants reporting either a high school diploma or GED certificate who demonstrate literacy proficiencies in either level 1 or level 2. Some 40 to 50 percent of the two DOL populations demonstrate proficiencies within these levels.

Black and Hispanic program participants, while not very different from each other, are disproportionately represented at the low and high levels on the document scale when compared with White program participants. As shown in Table 5.3, some 25 to 30 percent of Black and Hispanic participants in JTPA and ES/UI programs demonstrate proficiency within the level 1 range compared with 5 to 8 percent of White participants. Similarly, while about 40 to 50 percent of Black and Hispanic DOL program participants perform within the level 2 range, 25 to 30 percent of White participants demonstrate performance at this level. Conversely, while some 2 to 7 percent of Black and Hispanic participants demonstrate performance at levels 4 and 5 on the document scale, some 17 to 30 percent of White program participants attain these higher levels.

- *Quantitative Literacy*

The quantitative literacy scale used in this assessment contains a total of 42 tasks that range from 226 to 422 on the scale. To complete these tasks successfully, a respondent must perform arithmetic operations such as addition, subtraction, multiplication, or division either singly or in combination using numbers or quantities that are embedded in printed information.

While at first glance the inclusion of quantitative tasks might appear to extend the concept of literacy beyond its traditional limits, an analysis of tasks along this scale shows that the processing of printed information plays a critical role in affecting the difficulty of these quantitative tasks. In general, it appears that many individuals can perform simple arithmetic operations when both the numbers and operations are made explicit. However, when these same operations are performed on numbers that must be located and extracted from different types of documents that contain similar but irrelevant information, or when these operations must be inferred from printed directions, the tasks become increasingly difficult.

As a result, the placement of tasks along this scale seems to be a function of:

- the particular arithmetic operation called for
- the number of operations needed to perform the task
- the extent to which the numbers are embedded in printed materials
- the extent to which an inference must be made to identify the type of operation to perform

Characterizing Levels of Proficiency on the Quantitative Scale

The following discussion highlights some of the tasks along the quantitative scale and describes how their placement along the scale seems to be affected by various combinations of the above-mentioned variables. Throughout the discussion, the numbers associated with specific tasks refer to the point on the scale at which the task is located.

Level 1 ≤ 225 JTPA 14.5%
Quantitative ES/UI 11.7%

Although no quantitative tasks used in this assessment fall below the score value of 225, experience suggests that such tasks would require the reader to perform a single, relatively simple arithmetic operation (e.g., addition or subtraction) for which either the numbers are already entered onto the given document and the operation is stipulated or the numbers are provided and the operation does not require the reader to borrow or carry.

Level 2 226-275 JTPA 31.1%
Quantitative ES/UI 25.3%

The least demanding task on the quantitative scale requires the reader to enter and total two numbers on a bank deposit slip (RP80=226). In this instance, both the numbers and the operation are judged to be easily identified and the operation involves the simple addition of two decimal numbers that are set up in column format and do not require carrying. Moreover, the numbers are stated in the question so the problem is, in some sense, set up for the reader.

In other tasks having similar characteristics that are somewhat higher on the scale, the quantities, while easy to identify, are not explicitly given in the question but have to be searched for and identified in the document. One such task at the 265 level requires the reader to locate the appropriate shipping charges in a table before entering the correct amount on an order form and then to calculate the total price for ordering office supplies by adding a column of five dollar amounts.

Individuals who are estimated to be performing around 250 on the quantitative scale can be expected to perform tasks in the 226 to 275 range (level 2) with about 80 percent probability. The chance of performing tasks at the 276 to 325 level drops to just under 50 percent, while above the 325 level the probabilities are 20 percent or less. That is, while they may be expected to respond correctly to tasks at these higher levels, they will most likely do so in an inconsistent manner.

NATIONAL BANK

(Please Print)

Please use your personalized deposit tickets.
If you need more, see your personal banker.

Name _____

_____ 19 _____

BE SURE EACH ITEM IS PROPERLY ENDORSED

		Dollars	Cents
CASH			
CHECKS List Singly			
Total Items	TOTAL		

CHECKS AND OTHER ITEMS ARE RECEIVED FOR DEPOSIT SUBJECT TO THE PROVISIONS OF THE UNIFORM COMMERCIAL CODE OR ANY APPLICABLE COLLECTION AGREEMENT.

Level 3 276-325 JTPA 37.1%
Quantitative ES/UI 37.4%

Tasks around 300 (from 276 to 325, level 3) on the quantitative scale still require a single operation of either addition, subtraction, multiplication, or division. What appears to distinguish these tasks, however, is the fact that the reader must identify two or more numbers from various places in the document needed to solve the problem. Also, the operation needed to complete the task is not explicitly stated in the directive or provided by the format of the document, as in the previous examples. Instead, the operation must be determined from arithmetic relation terms, such as "how many" or "what is the difference," used in the question. For example, a task at the 283 level directs the reader to look at a table of money rates to determine, "How much higher was Thursday's prime lending rate as compared to the rate of one year ago?"

MONEY RATES

	Thurs.	6 mo. ago	Yr. ago
Prime lending	10.00%	8.50%	8.75%
Fed discount	6.50%	6.00%	6.00%
Broker call loan	9.13%	7.63%	8.13%
Mortgage rates			
30-yr. fixed-rate (FHLMC)	10.65%	9.85%	10.63%
30-yr. adjustable (FHLMC)	8.16%	7.53%	7.84%
15-yr. fixed rate[1]	10.39%	9.75%	10.28%
ARM index (1-year Treas.)	8.24%[2]	6.63%	7.41%
Money market accounts, latest 7-day average			
Money mutual funds[3]	7.37%	6.05%	6.03%
Banks and S&Ls[4]	5.81%	5.59%	5.47%
Treasury security rates			
3-month T-bill discount[4]	7.26%	5.74%	6.45%
6-month T-bill discount[4]	7.40%	5.93%	6.72%
7-year note	8.85%,-.01	8.12%	9.22%
30-year bond	9.03%, -.03	8.55%	9.57%

1—*Bank Rate Monitor*
2—week ending Sept. 2
3—*Donoghue's Money Fund Report*
4—Sept. 6 auction

THE DOLLAR

Another example of a task in this level 3 range of complexity involves using an advertisement to determine the amount of savings over the retail price (RP80=302). To respond correctly to this task, the reader must identify the appropriate prices from a table by matching several pieces of information. They must then infer the appropriate operation from the phrase, "How much would you save," and perform the calculation correctly using the numbers identified.

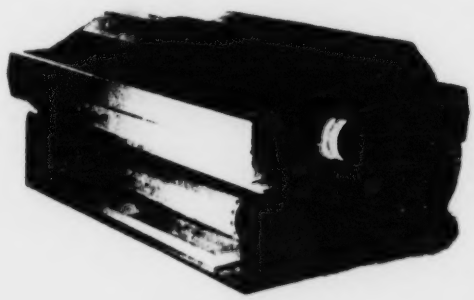
Individuals who are estimated to be performing at about the 300 level successfully perform these types of quantitative tasks with about an 80 percent probability. They have at least a 90 percent probability of getting tasks correct below the 275 level. Their success on tasks between 326 and 375 drops to about 50 percent and to about 25 percent on tasks above the 375 level.

BusinessLand says they offer discount prices. If you purchased 1 narrow-with-slot printer stand, how much would you save by paying BusinessLand's price rather than the retail price?

BUSINESSLAND PRINTER STAND

Save space with our economical printer stand.

We wanted to prove a printer stand could perform perfectly, look good and still not cost much. So we commissioned this handsome, smoky grey acrylic stand. It's a convenient, inexpensive desktop solution. It keeps your printer paper stacked and ready without taking up extra desk space. Your paper feeds smoothly into your printer because it's tucked conveniently underneath. Also available with center slot for bottom feed printers. Comes in two sizes to fit either 80 or 132 column paper. Order this inexpensive space saver today.



BUSINESSLAND PRINTER STAND

DESCRIPTION		ORDER NO.	RETAIL	QTY. 1	QTY. 2-4
Narrow	15"W x 12"D x 4-1/2"H - 80 column	475-5231	$24.95	$22.95	$18.95
Narrow w/slot	15"W x 12"D x 4-1/2"H - 80 column	475-5447	$25.95	$23.95	$19.95
Wide	20"W x 12"D x 4-1/2"H - 132 column	475-5249	$34.95	$22.70	$22.70
Wide w/slot	20"W x 12"D x 4-1/2"H - 132 column	475-5462	$35.95	$22.95	$22.95
Printer Stand for HP ThinkJet		462-41152	$49.95	$48.95	$38.95

Level 4 326-375 JTPA 15.1%
Quantitative ES/UI 21.4%

Tasks around 350 (between 326 and 375, level 4) tend to require two or more sequential operations or the application of a single operation where either the quantities or the operation is not easily determined. For example, one task at the 331 level directs the reader to use a flight information table to determine the latest plane that a visitor could take from a particular city to arrive in time for a meeting, given a set of conditions spelled out in the directive.

FROM DENVER				FROM MINNEAPOLIS			
Flight #	Departure	Arrival	Meal	Flight #	Departure	Arrival	Meal
605	6:05	7:10	B	352	6:15	8:35	S
397	7:45	8:50	B	498	7:10	9:40	B
552	8:00	9:05	S	176	7:30	10:15	B
782	8:30	9:45	S	544	8:05	10:45	S
310	9:00	10:10	S	386	9:10	11:30	S
170	10:05	11:15	S	904	9:45	12:15 p.m.	S
451	10:30	11:40	S	881	10:00	12:10	S
893	11:45	12:50 p.m.	S	455	10:30	12:45	S
116	12:15 p.m.	1:20	L	254	11:45	2:15	L
789	2:30	3:45	S	562	12:30 p.m.	3:40	S
245	3:50	5:10	S	784	2:50	5:50	S
436	5:30	6:45	D	895	4:15	6:55	D
576	6:05	7:15	S	902	5:45	8:20	D
776	8:45	9:55	S	114	6:00	8:40	D
002	10:15	11:20	S	008	7:20	10:00	S

In this instance, the quantities to be used are easily identified from the directive; however, the respondent must infer the appropriate operations from the semantic information given or from prior knowledge. No arithmetic relation terms such as, "how much" or "what is the difference," are provided.

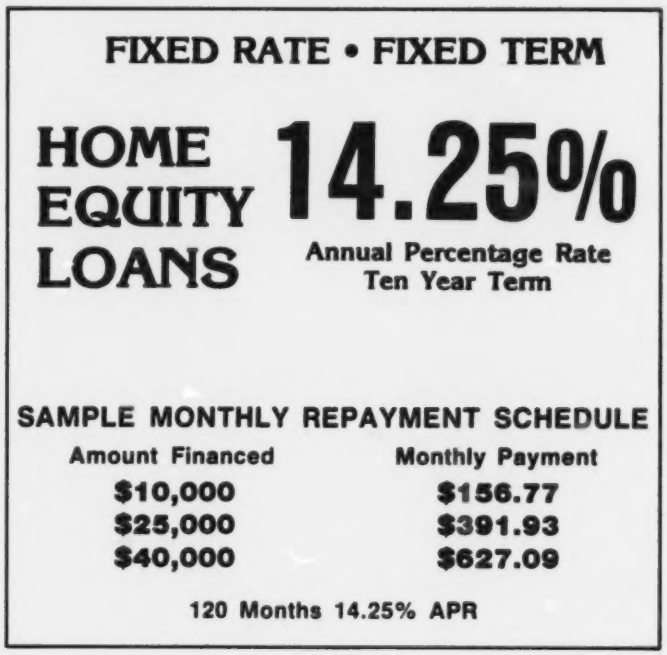
A slightly more difficult task on this scale (RP80=354) directs the reader to use a graph to "estimate the difference between short-term and long-term interest rates at the beginning of 1985." In this example, only one operation is required and it is easily inferred from the terms used in the directive. What appears to contribute to the task's difficulty is that the appropriate graph must be identified from among four presented and then the two quantities identified. While one of the points to be compared falls on a numbered line in the graph, the other must be interpolated from the information given.

Individuals estimated to perform at level 4 on this scale have roughly an 80 percent probability of responding correctly to the types of tasks described in this 326 to 375 range. They can be expected, on average, to complete successfully quantitative tasks falling below the 326 level with a better than 95 percent probability.

Level 5 ≥ 376 JTPA 2.2%
Quantitative ES/UI 4.2%

Tasks surpassing 375, level 5, tend either to have conditional information that requires the reader to disembed appropriate features of a problem from various parts of the document or to require the reader to draw heavily on background information in order to identify both the quantities and the operations needed to complete the task

successfully. For example, a task at the 406 level on the quantitative scale asks the reader, "How much will it cost to enroll in a 4-credit biology class with a lab if you register on time and are NOT a senior citizen?" The most difficult task on this scale (RP80=422) requires readers to look at an advertisement for a home equity loan and then, using the information provided, explain how they would calculate the total amount of interest charges to be paid.



Individuals who are estimated to be performing above the 375 level demonstrate the highest level of proficiency on the quantitative scale. As such, they exhibit skill in using the basic arithmetic operations in conjunction with a broad variety of printed materials.

Profiling Proficiencies on the Quantitative Scale

Table 5.4 shows the percentages of JTPA and ES/UI program participants estimated to score within each of the five quantitative proficiency levels just described. Percentages are shown for the total populations and for several demographic and background variables of interest. There are no marked differences in the distributions of proficiencies on the quantitative scale between the two DOL populations. For example, some 12 to 15 percent of JTPA and ES/UI program participants are estimated to be performing in the range of level 1 tasks. Although no quantitative

tasks used in this assessment fell within this range, experience suggests that tasks at this level would require addition or subtraction in which either the numbers are already entered on a form in column format or the operation does not require the reader to borrow or carry. It would seem, therefore, that literacy skills of those program applicants estimated to be performing at level 1 would place the most severe restrictions on their full participation in our increasingly complex society. As noted in Table 4.4, they are performing at or below the level of those individuals who report zero to eight years of education.

Roughly 25 to 30 percent of the applicants in each of these populations are estimated to score in the level 2 range on the quantitative scale. At this level, individuals can be expected to use a single arithmetic operation involving numbers that are either stated in the question or easily identified in the document. Demonstrated proficiency in this range appears to be a limiting factor since individuals scoring in level 2 demonstrate consistent performance on only three tasks representing fewer than 10 percent of the quantitative tasks used in this assessment. Moreover, referring back to Table 4.4, these individuals are, on average, performing at about the level of those who report dropping out of school before earning a high school diploma or GED.

As shown in Table 5.4, nearly 40 percent of the DOL populations demonstrate performance in the level 3 range. Such individuals demonstrate consistent success in dealing with tasks in which two or more numbers needed to solve the problem must be identified in different places in the document or text. In addition, the operation(s) needed to complete the task are determined from arithmetic relation terms, such as "how many" or "what is the difference" given in the question or directive. These individuals can be expected to perform successfully (with some 80 percent probability or higher) 55 percent of the quantitative tasks contained in this assessment. Although there is room for improvement, it is likely that these individuals are not encountering major difficulty in performing well-structured arithmetic problems that may be frequently associated with work or home. In fact, these individuals are performing at about the level of JTPA and ES/UI program participants who report earning a high school diploma or GED.

About 20 to 25 percent of the DOL populations demonstrate skills at or above the level 4 range. While less than 5 percent attain level 5, as a group these individuals are succeeding on nearly 90 percent of the tasks contained on the quantitative scale. These tasks require the application of two or more sequential operations or the application of a single operation where either the numbers or the operation cannot easily be determined. The most challenging tasks require the reader to disembed appropriate features of a problem from various parts of the document or to rely heavily on background knowledge. These skills are commensurate with individuals who report a two-year college degree or higher.

Table 5.4 **The Percentages of JTPA and ES/UI Applicants Demonstrating Proficiencies at Each of the Five Levels on the Quantitative Scale by Gender, Race/Ethnicity, Education, Labor Force Status, and Weeks of Employment***

QUANTITATIVE

	JTPA					ES/UI				
LEVEL	1 ≤ 225	2 226-275	3 276-325	4 326-375	5 ≥ 376	1 ≤ 225	2 226-275	3 276-325	4 326-375	5 ≥ 376
TOTAL	14.5 (1.4)	31.1 (2.4)	37.1 (1.7)	15.1 (1.8)	2.2 (0.6)	11.7 (1.9)	25.3 (1.1)	37.4 (1.3)	21.4 (1.5)	4.2 (0.5)
GENDER										
Male	16.6 (1.7)	30.7 (2.6)	35.6 (2.0)	15.1 (2.1)	1.9 (0.5)	12.1 (2.1)	25.0 (1.4)	35.5 (1.4)	23.4 (2.6)	3.9 (0.4)
Female	12.9 (1.7)	30.8 (2.9)	38.6 (1.9)	15.2 (1.9)	2.5 (0.8)	11.3 (1.8)	25.7 (1.0)	39.8 (2.2)	18.9 (1.1)	4.4 (1.0)
RACE/ETHNICITY										
White	9.2 (1.0)	27.0 (2.2)	41.3 (1.8)	19.3 (1.8)	3.2 (0.8)	4.3 (0.9)	18.4 (0.8)	42.1 (0.8)	29.0 (0.9)	6.2 (0.8)
Black	25.9 (3.2)	42.1 (3.6)	26.5 (2.6)	5.2 (1.8)	0.3 (0.2)	26.9 (5.6)	36.5 (3.9)	31.7 (6.5)	4.8 (1.4)	0.0 (0.0)
Hispanic	29.9 (4.8)	30.6 (5.3)	30.2 (5.3)	9.3 (3.0)	0.0 (0.0)	25.7 (3.7)	40.6 (2.8)	26.6 (3.6)	7.0 (0.8)	0.0 (0.0)
LEVEL OF EDUCATION										
0-8 Years	43.8 (5.4)	35.3 (6.2)	20.5 (4.1)	0.4 (0.3)	0.0 (0.0)	61.3 (11.1)	33.5 (10.0)	5.3 (1.9)	0.0 (0.0)	0.0 (0.0)
9-12 Years	27.4 (1.8)	41.6 (2.9)	25.0 (2.8)	6.0 (2.0)	0.0 (0.0)	30.1 (4.7)	39.5 (4.2)	25.7 (3.3)	4.1 (1.4)	0.6 (0.5)
H.S. Dip. or GED	7.3 (1.1)	30.2 (3.2)	43.3 (2.6)	17.4 (2.3)	1.8 (0.6)	9.1 (1.4)	26.8 (1.6)	44.3 (2.1)	17.1 (1.5)	2.7 (0.8)
Some Postsec.	5.5 (2.0)	22.7 (2.6)	51.2 (3.4)	18.7 (2.8)	1.8 (0.9)	4.9 (1.0)	24.0 (1.4)	42.6 (1.3)	25.2 (1.9)	3.4 (0.5)
College Degree	2.3 (2.2)	6.3 (2.4)	24.8 (8.4)	46.1 (5.9)	20.5 (7.0)	4.0 (1.4)	11.8 (1.5)	31.2 (3.6)	41.3 (3.6)	11.7 (2.5)
LABOR FORCE STATUS**										
Employed	12.7 (2.1)	26.2 (5.0)	37.8 (2.5)	20.8 (4.2)	2.5 (1.6)	8.6 (1.7)	22.5 (1.5)	40.0 (2.2)	23.0 (1.2)	5.9 (0.7)
Unemployed– Looking for Work	13.3 (1.9)	30.3 (2.5)	40.2 (3.2)	13.4 (1.5)	2.7 (0.9)	9.6 (1.4)	24.3 (1.7)	39.1 (1.5)	23.4 (2.5)	3.7 (0.8)
Out of Labor Force	16.2 (1.5)	33.9 (2.3)	34.6 (2.0)	13.5 (2.1)	1.8 (0.5)	18.5 (3.5)	30.2 (3.9)	32.0 (2.9)	16.8 (2.9)	2.5 (1.0)
WEEKS OF EMPLOYMENT***										
0-13	18.6 (2.1)	34.5 (2.7)	33.4 (3.0)	12.5 (1.6)	1.0 (0.5)	18.9 (3.3)	30.0 (2.4)	34.3 (3.7)	15.7 (2.6)	1.1 (0.6)
14-39	11.8 (1.2)	30.0 (3.1)	40.4 (2.5)	15.6 (1.9)	2.3 (0.7)	14.4 (2.8)	27.5 (1.6)	32.9 (1.8)	21.7 (2.6)	3.6 (1.3)
40+	8.6 (1.9)	24.4 (3.8)	41.6 (3.5)	20.7 (4.6)	4.8 (2.2)	8.7 (1.7)	22.9 (1.7)	40.1 (1.5)	22.9 (1.4)	5.4 (0.6)

* The numbers in parentheses are estimated standard errors.
** During the week prior to the assessment.
*** During the 12 months preceding the assessment.

As with the prose and document scales, the interesting patterns of performance occur at the extreme levels for weeks of employment. Individuals at levels 1 and 2 are more likely to report having been employed 13 or fewer weeks during the 12 months preceding the assessment than 40 or more weeks. As to be expected, this pattern reverses for individuals at levels 4 and 5 — that is, individuals demonstrating the highest levels of proficiency are significantly more likely to have been employed for 40 or more weeks than to have worked 13 or fewer weeks.

The distributions showing the greatest differences across the five levels are those defined by educational attainment and race/ethnicity. It is probably not surprising that within the two DOL populations the largest percentages of individuals scoring in level 1 are adults who report zero to eight years of education. Conversely, the highest percentages associated with levels 4 and 5 are adults who report a college degree. For example, roughly 40 percent of JTPA and 60 percent of ES/UI program participants with zero to eight years of education score within the level 1 range on the quantitative scale, whereas from 50 to 66 percent earning a college degree score within levels 4 and 5. What is most disturbing about these data is the high proportion of JTPA and ES/UI participants reporting either a high school diploma or GED certificate who demonstrate literacy proficiencies in either level 1 or level 2. Some 35 to 40 percent of the two DOL populations demonstrate proficiencies within these levels.

Black and Hispanic program participants, while not very different from each other, are disproportionately represented at the low and high levels of the quantitative scale when compared with White program participants. As shown in Table 5.4, some 25 to 30 percent of Black and Hispanic JTPA and ES/UI program participants demonstrate proficiency within the level 1 range compared to 4 to 9 percent of White program participants. Similarly, while some 30 to 40 percent of Black and Hispanic participants perform within the level 2 range, 20 to 30 percent of White participants demonstrate performance at this level. Conversely, while 5 to 10 percent of Black and Hispanic program participants demonstrate performance at levels 4 and 5 on the quantitative scale, about 20 to 35 percent of White participants attain these higher levels.

• Summary and Conclusions

The definition of literacy adopted for this study assumes that literacy involves the skills needed to do something rather than simply the knowledge of something. While knowledge is important, the emphasis here is on literacy as a tool that enables people to participate more fully at work, at home, and in their communities. Literacy skills enable individuals to use printed and written information so they are able, among other things, to participate in local and national government, to hold and advance in a job, to understand and obtain legal and community services, to manage a household, as well as to improve themselves.

In pursuing these activities, people interact with many different types of printed materials for different purposes. The resulting wide array of literacy behaviors are likely to require different types of skills and knowledge that are better represented as continua rather than as an all-or-nothing condition. While some efforts have arbitrarily designated individuals into one of two categories — literate or illiterate — they are misleading in that, by themselves, they provide little guidance or understanding of the nature of the problem or the types of behaviors that could be helpful in addressing it.

Through the anchoring process described in this chapter, specific tasks have been identified along each of the three literacy scales that characterize the interactions between materials and questions or directives that appear to affect both the type and level of processing needed to respond correctly. These analyses also suggest that while literacy is not a single skill suited to all types of texts, neither is it an infinite number of isolated skills each associated with a different type of material or purpose for reading. Rather, there appears to be an ordered set of information-processing skills and strategies that may be called into play to accomplish the range of tasks represented in the various aspects of literacy defined here.

At the risk of oversimplification we have attempted in Figure 5.1 to characterize these proficiencies in terms of five discrete levels that range over the literacy scales.

Figure 5.1 Levels of Proficiency

LEVEL 1: Less Than or Equal to 225 on the Literacy Scales

Tasks falling within this range on the three literacy scales are the least demanding in terms of what a reader must do in order to produce a correct response. In general, prose and document tasks at this level require a reader to identify and enter information from personal knowledge or to locate a piece of information in which there is a literal match between the question and the stimulus material. If a distractor or plausible answer appears in the stimulus material, it tends to be located away from where the correct information is found. Although no quantitative tasks used in this assessment fell within this level, experience suggests that such tasks would require the reader to perform a single, relatively simple arithmetic operation (such as addition or subtraction) for which either the numbers are already entered onto the document and the operation is given or the numbers are provided and the operation does not require the reader to borrow or carry.

LEVEL 2: 226-275 on the Literacy Scales

Prose and document literacy tasks falling within this range are more varied in terms of the demands placed on readers. Some of these tasks still require the reader to locate and match on a single literal feature of information; however, these tasks tend to occur in materials in which there are several distractors or where the match is based on synonymous or text-based inferences. Prose and document tasks at level 2 also begin to require readers to integrate information by either pulling together two pieces of information or by comparing and contrasting information. Quantitative tasks at this level typically require the use of one arithmetic operation based on numbers that are either stated in the question or easily located in the document through a literal one-feature match. Moreover, the operation needed to complete the task is either stated in the question or easily determined based on the format of the problem — for example, entries on a bank deposit slip or on an order form.

LEVEL 3: 276-325 on the Literacy Scales

Prose tasks at this level tend to require the reader to search fairly dense text for literal or synonymous matches on the basis of more than one feature of information or to integrate information from relatively long text that does not contain organizational aids such as headings. Document tasks at this level tend to require the reader to integrate three or more features of information from rather complex tables or graphs in which distractors are present in the same row or column. What appears to distinguish quantitative tasks at this level is the fact that two or more numbers or quantities needed to solve the problem must be identified from various places in the material. Also, the operation(s) needed to complete the task is typically determined from arithmetic relation terms in the question, such as "How many" or "What is the difference."

LEVEL 4: 326-375 on the Literacy Scales

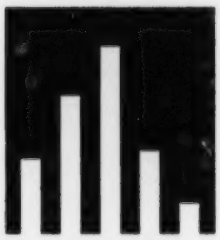
Tasks in this range continue to demand more from the reader. Not only are multiple-feature matching and integration of information from complex materials maintained, the degree of inferencing required by the reader is also increased. Tasks at this level include conditional information that must be taken into account by the reader in order to integrate or match information appropriately. Quantitative tasks at level 4 tend to require two or more sequential operations or the application of a single operation where either the quantities or the operation must be determined from the semantic information given or from prior knowledge.

LEVEL 5: 376 and Higher on the Literacy Scales

Tasks falling within this range tend to place the greatest demands on the reader. Typically, they require the reader to search for information in dense text or complex documents containing multiple plausible distractors, to make high text-based inferences or use specialized background knowledge, as well as to compare and contrast sometimes complex information to determine differences. Similarly, the quantitative tasks at this level require the reader to disembed features of a problem from various parts of a stimulus or to rely heavily on background knowledge to identify both the quantities and the operations needed to complete a task successfully.

CHAPTER 6

COMPARING DOL WITH THE YOUNG ADULT POPULATION



A question that remains unanswered is whether the achieved levels of proficiency described here are sufficient to meet the increasingly diverse literacy demands found in our society. The answer to this question requires the setting of standards that go beyond the scope and intent of this assessment. However, in future studies, we should reject the setting of arbitrary standards that do not reflect the complexity and diversity of literacy processes and, therefore, do not enhance our understanding of the nature of literacy in American society.

(Kirsch & Jungeblut, 1986, p. IV-27)

As has been done in almost all earlier literacy surveys, arbitrary cut points can be set that appear to separate people neatly into one of two categories. Such cut points, however, serve to move us away from the real literacy issue, which is: what kinds of tasks do people perform successfully and how do these demonstrated proficiencies relate to various social needs. In Chapter 4, the focus was on describing the comparative mean proficiencies of the two DOL populations with respect to various demographic and background variables. Chapter 5 went further by identifying literacy levels within each of the three scales and describing both the nature of the information-processing skills associated with each level and the percentages of various subgroups that demonstrate performance within these five levels.

In this chapter, the goal is to further extend our understanding of the literacy skills demonstrated by the two DOL populations by examining their proficiencies in the context of other large-scale surveys using the same assessment framework. From the outset, one of the goals of the Department of Labor has been to link the assessment of JTPA and ES/UI program participants to the young adult assessment results by using the same definition of literacy along with a common set of tasks. Two states, Mississippi and Oregon, sought and received permission from DOL to use the identical assessment package to conduct statewide literacy surveys concurrent with data collection for DOL. As a result, it is possible to compare the JTPA and ES/UI populations to young adults as well as to population estimates for Mississippi and Oregon (Cosby, et. al., 1991; Oregon Progress Board, 1991).

The initial notion was that the state populations along with the nationally representative sample of young adults would provide a first approximation of performance standards that could be used as a comparison with the DOL populations. For example, it was hoped that the weighted average across the two state populations on selected variables such as race/ethnicity, educational attainment, and occupation could provide this first approximation. While the concept of performance standards in a pluralistic society requires some provision for local variation and self-determination,

in actuality it appears that the weighted averages within particular subgroups are dominated in this instance by one or the other state sample and, thus, do not yield an accurate picture of those subgroups for the nation as a whole.

As a result, the joint distributions for Mississippi and Oregon do not provide a reliable index for use as a performance standard for many of the variables of interest. The focus of this chapter, therefore, will be on comparisons with the nationally representative performance of young adults; the state data, however, are presented in Appendix D. We anticipate that by the summer of 1992 data collection for the National Adult Literacy Survey (NALS, 1992) will be complete. The expected database will contain performance and background information not only for a nationally representative sample of adults 16 years of age and older, but also for 11 states that will conduct concurrent assessments. Together, this information will yield stable estimates of performance with respect to socially prominent variables, thus providing a context within which to understand demonstrated performance of targeted populations such as the incarcerated, the unemployed, and so forth.

• Comparing 21- to 25-Year-Olds in the Three Populations

The entries in Tables 6.1 and 6.2 provide an interesting perspective from which to understand the proficiency distributions on the three literacy scales. Table 6.1 presents the percentages of JTPA and ES/UI program participants within each of the five levels of proficiency in the age range 21 to 25 years, thus providing an age cohort with the young adult sample assessed in 1985. In addition, information in Table 6.2 is provided for 26- to 31-year-old JTPA and ES/UI participants who represent the current age cohort at the time of the DOL assessment, that is, individuals who were 21- to 25-years of age in 1985. It is worth noting that the information contained in Tables 6.1 and 6.2 is presented only for the total population because, for the two DOL programs, the age cohorts represent relatively small subgroups of their respective populations. To further divide these DOL subgroups by variables such as education or race/ethnicity would result in cells that contain too few individuals to yield reliable estimates of the various distributions.

It will be seen from Table 6.1 that the differences among 21- to 25-year-olds in the three populations for prose and quantitative literacy are few and scattered across the various distributions. On the document scale, however, there is a tendency in both DOL populations to see significantly smaller percentages of participants at the higher proficiency levels (that is, levels 3, 4, and 5), while larger percentages of applicants are found at level 2. No significant differences are seen among the three populations at level 1.

Table 6.1 **Comparisons Among 21- to 25-Year-Olds in NAEP, JTPA, and ES/UI Populations at Five Proficiency Levels on the Three Literacy Scales***

	Prose			Document			Quantitative		
	NAEP	JTPA	ES/UI	NAEP	JTPA	ES/UI	NAEP	JTPA	ES/UI
	21-25	21-25	21-25	21-25	21-25	21-25	21-25	21-25	21-25
Level 5	4.7 (0.8)	2.3 (0.9)	2.8 (1.3)	4.1 (0.6)	0.9 (0.7)	0.7 (0.2)	4.6 (0.5)	2.8 (1.3)	2.3 (0.9)
Level 4	23.8 (1.1)	19.5 (2.6)	20.8 (3.6)	24.0 (1.1)	11.8 (2.3)	15.8 (3.6)	24.0 (1.2)	18.4 (3.7)	19.6 (2.7)
Level 3	39.4 (1.3)	40.7 (2.6)	34.1 (2.4)	39.7 (1.2)	40.0 (2.9)	31.5 (3.4)	40.2 (1.1)	35.0 (4.2)	35.2 (4.9)
Level 2	23.1 (0.8)	26.5 (2.0)	26.7 (2.9)	24.2 (1.1)	37.3 (2.4)	38.3 (2.6)	23.8 (1.2)	31.5 (2.8)	30.4 (5.1)
Level 1	9.1 (0.8)	11.0 (1.9)	15.6 (2.0)	8.0 (0.6)	10.0 (2.1)	13.8 (3.6)	7.5 (0.7)	12.4 (2.0)	12.5 (2.5)

*The numbers in parentheses are estimated standard errors.

For the current 26- to 31-year-olds who were 21 to 25 years of age in 1985 (Table 6.2), no statistically significant pattern emerges in terms of performance differences when comparing the DOL populations to the NAEP young adults. However, there is a tendency for the DOL populations to be overrepresented at levels 1 and 2. While only six of the 12 comparisons at these lower levels reach statistical significance, 11 of the 12 are in the noted direction.

Table 6.2 **Comparisons Among 21- to 25-Year-Olds in NAEP, and 26- to 31-Year-Olds in JTPA and ES/UI Populations at Five Proficiency Levels on the Three Literacy Scales***

	Prose			Document			Quantitative		
	NAEP	JTPA	ES/UI	NAEP	JTPA	ES/UI	NAEP	JTPA	ES/UI
	21-25	26-31	26-31	21-25	26-31	26-31	21-25	26-31	26-31
Level 5	4.7 (0.8)	7.7 (2.8)	4.7 (1.1)	4.1 (0.6)	1.9 (1.6)	3.1 (0.6)	4.6 (0.5)	2.2 (1.7)	4.8 (1.4)
Level 4	23.8 (1.1)	16.3 (2.1)	19.6 (2.4)	24.0 (1.1)	11.2 (2.7)	18.7 (2.2)	24.0 (1.2)	12.9 (3.1)	22.2 (2.4)
Level 3	39.4 (1.3)	39.2 (3.2)	36.8 (1.9)	39.7 (1.2)	45.4 (5.4)	33.7 (2.0)	40.2 (1.1)	38.6 (2.5)	37.3 (2.0)
Level 2	23.1 (0.8)	25.1 (1.9)	29.1 (2.8)	24.2 (1.1)	30.6 (2.6)	29.2 (2.2)	23.8 (1.2)	34.4 (4.6)	23.8 (2.2)
Level 1	9.1 (0.8)	11.7 (2.6)	9.8 (1.3)	8.0 (0.6)	10.9 (2.1)	15.3 (1.9)	7.5 (0.7)	11.9 (2.4)	11.9 (1.9)

*The numbers in parentheses are estimated standard errors.

While these comparisons of relevant age cohorts for the total DOL populations are of some interest, the inability to look at subgroups because of the small number of respondents limits the utility of the cohort data in the present study. By aggregating across the age distributions, however, comparisons can be made between subgroups within each of the DOL populations and subgroups among young adults. These comparisons provide a first look at comparing these two DOL populations against the performance standards on variables of interest from a more nationally representative sample.

• Comparing JTPA, ES/UI, and Young Adults on the Prose Scale

The entries in Table 6.3 represent the percentages of young adult, JTPA, and ES/UI populations estimated to be performing within each of the five levels on the prose literacy scale as described in Chapter 5. These percentages are presented for the three total populations as well as for gender, race/ethnicity, and level of education.

Total Populations

As shown in Table 6.3, the single significant difference in performance between the total JTPA and ES/UI populations is found at level 4 (326 to 375). Although there are slightly larger percentages of ES/UI participants than young adult respondents at the two lower proficiency levels, the only significant difference between the ES/UI and young adult populations is at level 3. Two significant differences are noted between the young adult and JTPA populations. That is, a significantly larger percentage of JTPA applicants score within level 1 (0 to 225) — 13.7 compared with 9.1 — while significantly fewer JTPA applicants demonstrate performance at level 4 (326 to 375) as compared with young adults — 17.0 versus 23.8.

Men and Women

Like the general U.S. population, the young adult sample represents a roughly equal percentage of men and women. In contrast, as noted previously, the ES/UI population is about 56 percent male while the JTPA population is roughly 58 percent female. Nevertheless, few significant differences appear in the performance distributions between young adults and the two DOL populations. A lower percentage of men and women eligible for JTPA programs attain level 4 than is the case for young adults — 14.9 and 18.2 as compared with 23.2 and 24.3, respectively. In addition, a larger percentage of eligible JTPA males scores within level 1 than is the case for young male adults — 19.4 and 10.2, respectively.

Within the ES/UI population, there appears to be a general increase in the percentage of males performing at levels 1 and 2 in relation to those from the young adult sample. However, these differences are not statistically significant — 14.3 and 25.0 compared with 10.2 and 22.4, respectively. No significant differences are found between the two female subpopulations.

Race/Ethnicity

Like the general U.S. population, the young adult sample represents roughly 77 percent White, 13 percent Black, and 6 percent Hispanic respondents. Based on the population sizes in Table 6.3, the JTPA sample represents only 69 percent White, 21

Table 6.3 **The Percentages of Young Adult, JTPA, and ES/UI Populations Estimated to Be Performing Within Each of the Five Levels on the Prose Scale***

	n	Weighted N	225	226-275	276-325	326-375	376
NAEP YOUNG ADULTS	3,474	20,720,464	9.1 (0.8)	23.1 (1.0)	39.4 (1.3)	23.8 (1.1)	4.7 (0.8)
GENDER							
Male	1,544	10,054,793	10.2 (1.2)	22.4 (1.6)	39.5 (1.8)	23.2 (1.5)	4.8 (0.9)
Female	1,930	10,665,671	8.1 (0.7)	23.7 (1.2)	39.3 (1.6)	24.3 (1.2)	4.7 (1.0)
RACE/ETHNICITY							
White	1,997	16,018,109	5.3 (0.9)	19.2 (1.1)	41.9 (1.4)	27.9 (1.2)	5.7 (0.9)
Black	957	2,693,192	28.7 (2.0)	41.6 (2.5)	24.5 (2.2)	4.7 (1.0)	0.6 (0.3)
Hispanic	391	1,264,984	16.0 (1.9)	32.5 (3.3)	36.3 (3.8)	14.7 (3.5)	0.5 (0.4)
EDUCATION LEVEL							
0-8 Years	72	338,831	64.9 (10.0)	32.6 (10.3)	2.5 (1.9)	0.0 (0.0)	0.0 (0.0)
9-12 Years	511	2,220,378	33.0 (3.6)	42.7 (3.6)	22.2 (3.5)	2.1 (0.9)	0.1 (0.1)
H.S. Dip. or GED	1,280	7,463,079	10.1 (1.3)	31.4 (1.8)	43.6 (1.8)	14.0 (1.4)	0.8 (0.3)
Some Postsecondary	1,075	6,508,283	2.5 (0.6)	17.9 (1.6)	42.0 (2.4)	31.4 (2.3)	6.1 (1.3)
College Degree	533	4,179,602	0.1 (0.1)	5.1 (1.1)	39.8 (2.7)	42.7 (3.1)	12.3 (2.1)
JTPA	2,501	1,100,000	13.7 (1.7)	26.2 (1.7)	38.5 (2.1)	17.0 (0.9)	4.6 (0.7)
GENDER							
Male	1,008	451,859	19.4 (2.1)	26.5 (2.1)	35.9 (2.6)	14.9 (1.6)	3.3 (0.9)
Female	1,484	637,956	9.6 (1.5)	26.0 (1.8)	40.9 (1.9)	18.2 (1.4)	5.4 (1.1)
RACE/ETHNICITY							
White	1,556	760,740	9.7 (1.2)	23.6 (1.9)	41.1 (2.2)	19.9 (1.5)	5.7 (1.1)
Black	663	230,405	20.9 (4.0)	36.6 (3.0)	30.4 (3.7)	11.3 (1.5)	0.9 (0.4)
Hispanic	159	64,912	27.6 (4.6)	24.5 (5.5)	39.4 (5.5)	6.2 (2.2)	2.3 (2.3)
EDUCATION							
0-8 Years	176	64,975	49.2 (5.0)	25.9 (3.8)	21.4 (4.3)	3.5 (2.3)	0.0 (0.0)
9-12 Years	705	302,247	22.6 (2.1)	43.9 (3.1)	26.9 (2.3)	5.8 (1.9)	0.8 (0.6)
H.S. Dip. or GED	1,045	484,742	8.5 (1.2)	20.8 (2.2)	47.9 (3.0)	18.4 (1.0)	4.4 (1.5)
Some Postsecondary	442	184,509	3.7 (1.4)	18.5 (2.7)	42.6 (2.7)	28.7 (3.8)	6.4 (1.6)
College Degree	130	61,480	2.3 (2.2)	4.8 (2.0)	28.7 (10.3)	39.9 (7.5)	24.3 (6.7)
ES/UI	3,277	18,937,087	12.2 (2.4)	25.2 (1.3)	35.4 (1.3)	22.3 (1.6)	5.0 (0.6)
GENDER							
Male	1,756	10,631,408	14.3 (2.7)	25.0 (1.4)	34.2 (1.8)	21.7 (1.9)	4.8 (0.9)
Female	1,515	8,255,060	9.2 (2.0)	25.5 (1.6)	37.1 (1.6)	23.0 (1.7)	5.3 (1.0)
RACE/ETHNICITY							
White	2,394	11,894,800	3.7 (0.5)	18.5 (1.5)	40.1 (1.4)	29.9 (1.1)	7.9 (0.8)
Black	375	2,189,197	18.9 (4.7)	43.9 (2.3)	29.0 (2.9)	8.0 (1.1)	0.2 (0.2)
Hispanic	384	3,824,079	33.3 (5.6)	32.5 (6.0)	25.5 (2.9)	8.6 (1.8)	0.0 (0.0)
EDUCATION							
0-8 Years	120	511,432	64.5 (9.6)	30.0 (8.5)	5.2 (3.6)	0.3 (0.3)	0.0 (0.0)
9-12 Years	500	2,941,253	30.9 (7.8)	37.4 (7.1)	24.7 (3.9)	6.8 (1.1)	0.2 (0.1)
H.S. Dip. or GED	1,279	6,681,481	9.6 (1.1)	28.6 (2.0)	41.6 (2.2)	18.4 (1.4)	1.8 (0.4)
Some Postsecondary	861	5,154,636	5.3 (1.3)	22.3 (2.8)	38.6 (2.8)	29.3 (2.4)	4.5 (0.9)
College Degree	513	3,601,479	3.3 (1.5)	12.4 (1.8)	32.7 (2.3)	35.3 (2.2)	16.3 (2.3)

*The numbers in parentheses are estimated standard errors.

percent Black, and 6 percent Hispanic applicants. The ES/UI sample includes 63 percent White, 12 percent Black, and 20 percent Hispanic participants. In both DOL populations, a smaller percentage of White applicants is represented when compared with the young adult population. In contrast, JTPA programs appear to have a larger percentage of Black eligible applicants while ES/UI appears to have a larger representation of Hispanic participants.

For White and Hispanic JTPA applicants, the pattern of results is similar in relation to the pattern for young adults. That is, a significantly higher percentage of White and Hispanic JTPA applicants attain level 1 scores than White and Hispanic young adults — 9.7 and 27.6 as compared with 5.3 and 16.0, respectively. At the same time, a significantly smaller percentage of White and Hispanic JTPA applicants obtain scores in the level 4 range than do young adults — 19.9 and 6.2 compared with 27.9 and 14.7. In contrast, the pattern of results for Black JTPA applicants is reversed. Here we see a smaller (though not quite significant) percentage of individuals represented at level 1 compared with young adults (20.9 versus 28.7, respectively), while a significantly larger percentage of Black applicants is found to be performing at level 4 — 11.3 compared with 4.7.

The trend for Black ES/UI participants when compared with Black young adults is similar to the pattern noted for JTPA eligible Black applicants. That is, a smaller percentage of Black ES/UI participants attain level 1 scores (18.9 as compared with 28.7), while a larger percentage attain level 4 scores (8.0 versus 4.7). Among Hispanic participants, a larger percentage attain level 1 (33.3 as compared with 16.0), while a smaller percentage demonstrate proficiency at level 4 (8.6 versus 14.7). It should be noted, however, that the difference in percentages at level 1 is not statistically significant for Black participants nor is the difference for Hispanic applicants at level 4. There are no significant differences between the ES/UI White program participants and the subgroup of White young adults.

Levels of Education

The distributions of educational attainment are remarkably similar for the ES/UI and young adult populations. However, a larger percentage of JTPA eligible applicants report lower levels of attainment than is the case for either ES/UI participants or young adults. Thus, a substantially smaller percentage of JTPA applicants report some postsecondary experience or a college degree than either ES/UI participants or young adults.

The general pattern of results for the three populations is that educational attainment is positively related to demonstrated literacy proficiency. That is, individuals across the three populations who report lower levels of educational attainment are disproportionately represented in the lower levels on the prose scale. For example, the highest proportion of individuals scoring within level 1 are those

reporting zero to eight years of education — 64.9 percent of young adults, 49.2 percent of JTPA applicants, and 64.5 percent of ES/UI participants. Conversely, the highest proportion of individuals demonstrating proficiency at level 5 report attaining a college degree — 12.3 percent of young adults, 24.3 percent of JTPA applicants, and 16.3 percent of ES/UI participants. Nevertheless, there are still large proportions of high school graduates in levels 1 and 2.

Perhaps the most interesting findings relating to educational attainment are those shown in Table 6.3 for JTPA eligible applicants. Despite the fact that JTPA applicants report, on average, lower levels of educational attainment than did young adults, larger percentages of these JTPA applicants demonstrate proficiencies at levels 3 and 4 than do young adults with similar levels of education. For example, 21.4 and 3.5 percent of JTPA eligible applicants reporting zero to eight years of education are found to reach levels 3 and 4 on the prose scale, respectively, as compared with 2.5 and 0 percent of young adults. In addition, virtually no young adult reporting a college degree performs at level 1; however, 2.3 percent of JTPA applicants reporting a college degree perform at this level. The only significant differences for ES/UI participants that parallels this trend are found among college graduates scoring at levels 1 and 2 — the percentages are 3.3 and 12.4, respectively, for ES/UI participants and 0.1 and 5.1 for young adults.

• Comparing JTPA, ES/UI, and Young Adults on the Document Scale

The entries in Table 6.4 represent the percentages of young adult, JTPA, and ES/UI populations estimated to be performing within each of the five levels on the document literacy scale as described in Chapter 5. These percentages are presented for the three total populations as well as for gender, race/ethnicity, and level of education.

Total Populations

As shown in Table 6.4, although there are some differences in the distributions between JTPA and ES/UI applicants, the two DOL populations differ significantly from the young adult population at each of the five levels. That is, the DOL populations have a significantly larger percentage of individuals at levels 1 and 2 than do the young adults. For example, at level 1, there are 14.1 percent JTPA applicants and 13.1 percent ES/UI participants compared with 8.0 percent of young adults. Similarly, at level 2, there are 37.3 percent JTPA and 30.1 percent ES/UI participants compared with 24.2 percent of young adults. Beginning at level 3, the trend reverses and we see a larger proportion of young adults than is the case for either of the two DOL populations.

Table 6.4 The Percentages of Young Adult, JTPA, and ES/UI Populations Estimated to Be Performing Within Each of the Five Levels on the Document Scale*

	n	Weighted N	225	226-275	276-325	326-375	376
NAEP YOUNG ADULTS	3,474	20,720,464	8.0 (0.6)	24.2 (1.1)	39.7 (1.2)	24.0 (1.1)	4.1 (0.6)
GENDER							
Male	1,544	10,054,793	8.8 (1.0)	24.7 (1.6)	38.6 (1.9)	23.4 (1.2)	4.5 (0.8)
Female	1,930	10,665,671	7.2 (0.7)	23.6 (1.3)	40.8 (1.6)	24.5 (1.4)	3.8 (0.6)
RACE/ETHNICITY							
White	1,997	16,018,109	4.3 (0.5)	20.0 (1.1)	42.6 (1.5)	28.0 (1.4)	5.1 (0.7)
Black	957	2,693,192	25.6 (2.3)	43.6 (2.0)	26.1 (1.8)	4.7 (0.7)	0.1 (0.1)
Hispanic	391	1,264,984	15.0 (2.0)	35.2 (3.3)	34.5 (3.2)	14.2 (3.0)	1.1 (0.5)
EDUCATION LEVEL							
0-8 Years	72	338,831	60.8 (12.7)	22.5 (5.0)	15.1 (10.5)	1.6 (1.6)	0.0 (0.0)
9-12 Years	511	2,220,378	30.3 (2.6)	41.9 (2.8)	23.6 (3.1)	4.0 (1.1)	0.1 (0.1)
H.S. Dip. or GED	1,280	7,463,079	7.6 (0.8)	34.1 (1.7)	45.9 (1.9)	11.4 (1.1)	1.0 (0.4)
Some Postsecondary	1,075	6,508,283	2.7 (0.6)	17.2 (2.0)	41.5 (2.0)	33.5 (2.4)	5.1 (1.0)
College Degree	533	4,179,602	0.6 (0.3)	7.9 (1.3)	36.6 (2.3)	44.1 (2.8)	10.8 (1.8)
JTPA	2,501	1,100,000	14.1 (2.0)	37.3 (1.3)	35.4 (1.5)	12.2 (1.8)	1.1 (0.4)
GENDER							
Male	1,008	451,859	17.8 (2.6)	33.0 (2.1)	35.8 (2.7)	12.9 (2.0)	0.5 (0.4)
Female	1,484	637,956	11.1 (1.5)	40.0 (1.5)	35.5 (1.7)	11.8 (1.9)	1.5 (0.7)
RACE/ETHNICITY							
White	1,556	760,740	8.4 (1.2)	33.9 (1.8)	40.3 (1.7)	15.8 (2.1)	1.6 (0.5)
Black	663	230,405	26.7 (4.0)	47.4 (2.4)	23.6 (2.6)	2.3 (1.2)	0.0 (0.0)
Hispanic	159	64,912	26.2 (5.2)	46.4 (5.3)	20.9 (5.3)	6.4 (3.8)	0.1 (0.1)
EDUCATION							
0-8 Years	176	64,975	42.7 (4.0)	44.1 (4.8)	12.9 (4.2)	0.3 (0.3)	0.0 (0.0)
9-12 Years	705	302,247	26.4 (3.8)	45.5 (2.2)	24.8 (4.3)	3.4 (1.2)	0.0 (0.0)
H.S. Dip. or GED	1,045	484,742	8.1 (1.3)	35.3 (1.8)	41.3 (1.7)	14.0 (2.3)	1.2 (0.8)
Some Postsecondary	442	184,509	3.9 (0.9)	34.4 (3.1)	43.7 (2.8)	16.8 (2.3)	1.1 (0.6)
College Degree	130	61,480	0.0 (0.0)	12.9 (5.0)	41.2 (5.7)	39.7 (7.1)	6.1 (2.9)
ES/UI	3,277	18,937,087	13.1 (1.6)	30.1 (1.2)	35.9 (1.0)	18.5 (1.7)	2.4 (0.5)
GENDER							
Male	1,756	10,631,408	15.2 (2.2)	30.1 (1.8)	33.7 (1.5)	18.2 (2.5)	2.9 (0.8)
Female	1,515	8,255,060	10.3 (1.6)	30.3 (1.4)	38.6 (2.4)	19.0 (2.2)	1.8 (0.4)
RACE/ETHNICITY							
White	2,394	11,894,800	4.6 (0.7)	24.7 (1.5)	41.4 (1.1)	25.7 (1.3)	3.6 (1.1)
Black	375	2,189,197	28.6 (4.4)	46.8 (5.2)	22.0 (3.1)	2.6 (0.7)	0.0 (0.0)
Hispanic	384	3,824,079	31.1 (3.2)	37.8 (1.1)	25.7 (3.9)	4.7 (3.7)	0.7 (0.7)
EDUCATION							
0-8 Years	120	511,432	65.1 (11.5)	22.6 (5.8)	12.0 (9.6)	0.4 (0.4)	0.0 (0.0)
9-12 Years	500	2,941,253	32.9 (3.4)	38.0 (2.0)	25.7 (3.0)	3.3 (1.2)	0.1 (0.1)
H.S. Dip. or GED	1,279	6,681,481	11.2 (1.1)	36.1 (2.0)	37.2 (2.1)	14.1 (1.6)	1.4 (0.3)
Some Postsecondary	861	5,154,636	5.6 (1.2)	27.4 (1.2)	39.8 (3.1)	25.2 (2.5)	2.0 (0.6)
College Degree	513	3,601,479	3.6 (1.4)	17.7 (2.2)	39.1 (5.8)	32.5 (2.7)	7.1 (3.3)

*The numbers in parentheses are estimated standard errors.

Men and Women

As with the total populations, there are consistently larger percentages of men and women scoring at levels 1 and 2 in the DOL populations than in the young adult population. The trend at the three higher levels also reverses for men and women, although a number of comparisons (particularly for ES/UI participants) are not statistically significant. For example, 12.9 percent of men and 11.8 percent of women applying for JTPA services demonstrate proficiency at level 4 as compared with 23.4 percent of men and 24.5 percent of women in the young adult population — both comparisons are statistically significant. In contrast, some 18.2 percent of men and 19.0 percent of women ES/UI participants attain level 4, and the difference between young adult and ES/UI males is not statistically significant.

Race/Ethnicity

The entries in Table 6.4 show an interesting pattern at levels 1 and 2 for the different racial/ethnic subgroups. There are significant differences between the percentages of White and Hispanic JTPA applicants and White and Hispanic young adults scoring at level 1. Almost twice the percentage of White and Hispanic JTPA eligible applicants as young adults demonstrate proficiency at level 1. No significant differences appear between Black JTPA applicants and young adults at either level 1 or 2.

In contrast, the most notable and highly significant difference for ES/UI populations is that slightly more than twice the percentage of Hispanic ES/UI applicants than Hispanic young adults are found at level 1. There are no differences for White and Black ES/UI participants at level 1 in relation to young adults, while at level 2 the only significant difference as compared with the young adult population is that there is a higher percentage of White participants (24.7 compared with 20.0).

Although the patterns of statistical significance differ among the JTPA and ES/UI populations as compared with young adults, the general tendencies are the same. With higher percentages of JTPA and ES/UI program participants scoring in levels 1 and 2, smaller percentages of each racial/ethnic group in the DOL populations demonstrate proficiencies at the three higher levels when compared with young adults.

Levels of Education

By and large, the JTPA distributions of document proficiency for each of the levels of education are notably similar to those for young adults. The exception is for those JTPA eligible applicants reporting some postsecondary experience.

For ES/UI participants reporting less than a high school diploma or GED — i.e., zero to eight years and nine to 12 years — there are no significant differences as compared with similar distributions for young adults. The pattern of comparisons is

different, however, for those reporting higher levels of educational attainment. Those ES/UI participants reporting higher levels of education — i.e., some postsecondary and college degree — have higher percentages of individuals at both levels 1 and 2 than do young adults reporting similar levels of education. Moreover, the ES/UI participants who report the two highest levels of education tend to have lower percentages attaining levels 4 and 5 on the document scale than do comparable groups of young adults. Of the four possible comparisons, the only difference that does not reach at least the .05 level of significance is that for ES/UI participants at level 5 who report a college degree or higher. It is not unreasonable to hypothesize that despite reported levels of education, low demonstrated literacy skills might be a contributing factor to the apparent difficulties ES/UI participants experience in the labor force.

- COMPARING *JTPA, ES/UI,* AND YOUNG ADULTS ON THE QUANTITATIVE SCALE

The entries in Table 6.5 represent the percentages of young adult, JTPA, and ES/UI populations estimated to be performing within each of the five levels on the quantitative literacy scale as described in Chapter 5. These percentages are presented for the three total populations as well as for gender, race/ethnicity, and level of education.

Total Populations

Although the two DOL populations differ from each other along the five levels of proficiency, it is primarily the JTPA population which differs from the distributions of young adults shown in Table 6.5 for the quantitative scale. Significantly larger percentages of JTPA eligible applicants perform at levels 1 and 2 than do young adults, while significantly smaller percentages attain levels 4 and 5. No difference appears at level 3 between JTPA applicants and young adults. Only the difference at level 1 between ES/UI participants and young adults is statistically significant.

Men and Women

The distributions of scores for male and female JTPA applicants mirror the distributions for the total population: compared with young adults, larger percentages of both male and female JTPA applicants attain levels 1 and 2, while smaller percentages demonstrate proficiencies at levels 4 and 5 (the difference at level 5 for females is not statistically significant). Although the general tendencies are similar for ES/UI program participants in relation to young adults, only three differences are significant: those for females at levels 1 and 4 and that for males at level 3.

Table 6.5 The Percentages of Young Adult, JTPA, and ES/UI Populations Estimated to Be Performing Within Each of the Five Levels on the Quantitative Scale*

	n	Weighted N	225	226-275	276-325	326-375	376
NAEP YOUNG ADULTS	3,474	20,720,464	7.5 (0.7)	23.8 (1.2)	40.2 (1.1)	24.0 (1.2)	4.6 (0.5)
GENDER							
Male	1,544	10,054,793	8.0 (1.1)	23.2 (1.7)	41.3 (1.8)	22.6 (1.5)	4.9 (0.7)
Female	1,930	10,665,671	7.0 (0.7)	24.4 (1.4)	39.2 (1.3)	25.2 (1.5)	4.2 (0.6)
RACE/ETHNICITY							
White	1,997	16,018,109	4.2 (0.6)	20.2 (1.2)	42.6 (1.2)	27.5 (1.3)	5.6 (0.6)
Black	957	2,693,192	24.9 (2.4)	39.6 (1.7)	26.8 (2.3)	8.4 (1.7)	0.4 (0.2)
Hispanic	391	1,264,984	15.9 (1.9)	33.7 (3.7)	35.3 (3.4)	13.7 (3.1)	1.3 (0.6)
EDUCATION LEVEL							
0-8 Years	72	338,831	31.6 (7.8)	33.8 (7.3)	34.6 (9.3)	0.0 (0.0)	0.0 (0.0)
9-12 Years	511	2,220,378	30.5 (3.6)	37.2 (2.9)	27.5 (3.2)	3.7 (0.9)	1.0 (1.0)
H.S. Dip. or GED	1,280	7,463,079	8.4 (1.0)	29.7 (1.9)	42.9 (1.9)	17.9 (1.7)	1.0 (0.3)
Some Postsecondary	1,075	6,508,283	1.9 (0.3)	19.3 (1.8)	43.1 (1.8)	29.6 (1.8)	6.1 (1.0)
College Degree	533	4,179,602	0.4 (0.2)	12.4 (2.1)	37.9 (2.1)	38.6 (2.9)	10.8 (1.6)
JTPA	2,501	1,100,000	14.5 (1.4)	31.1 (2.4)	37.1 (1.7)	15.1 (1.8)	2.2 (0.6)
GENDER							
Male	1,008	451,859	16.6 (1.7)	30.7 (2.6)	35.6 (2.0)	15.1 (2.1)	1.9 (0.5)
Female	1,484	637,956	12.9 (1.7)	30.8 (2.9)	38.6 (1.9)	15.2 (1.9)	2.5 (0.8)
RACE/ETHNICITY							
White	1,556	760,740	9.2 (1.0)	27.0 (2.2)	41.3 (1.8)	19.3 (1.8)	3.2 (0.8)
Black	663	230,405	25.9 (3.2)	42.1 (3.6)	26.5 (2.6)	5.2 (1.8)	0.3 (0.2)
Hispanic	159	64,912	29.9 (4.8)	30.6 (5.3)	30.2 (5.3)	9.3 (3.0)	0.0 (0.0)
EDUCATION							
0-8 Years	176	64,975	43.8 (5.4)	35.3 (6.2)	20.5 (4.1)	0.4 (0.3)	0.0 (0.0)
9-12 Years	705	302,247	27.4 (1.8)	41.6 (2.9)	25.0 (2.8)	6.0 (2.0)	0.0 (0.0)
H.S. Dip. or GED	1,045	484,742	7.3 (1.1)	30.2 (3.2)	43.3 (2.6)	17.4 (2.3)	1.8 (0.6)
Some Postsecondary	442	184,509	5.5 (2.0)	22.7 (2.6)	51.2 (3.4)	18.7 (2.8)	1.8 (0.9)
College Degree	130	61,480	2.3 (2.2)	6.3 (2.4)	24.8 (8.4)	46.1 (5.9)	20.5 (7.0)
ES/UI	3,277	18,937,087	11.7 (1.9)	25.3 (1.1)	37.4 (1.3)	21.4 (1.5)	4.2 (0.5)
GENDER							
Male	1,756	10,631,408	12.1 (2.1)	25.0 (1.4)	35.5 (1.4)	23.4 (2.6)	3.9 (0.4)
Female	1,515	8,255,060	11.3 (1.8)	25.7 (1.0)	39.8 (2.2)	18.9 (1.1)	4.4 (1.0)
RACE/ETHNICITY							
White	2,394	11,894,800	4.3 (0.9)	18.4 (0.8)	42.1 (0.8)	29.0 (0.9)	6.2 (0.8)
Black	375	2,189,197	26.9 (5.6)	36.5 (3.9)	31.7 (6.5)	4.8 (1.4)	0.0 (0.0)
Hispanic	384	3,824,079	25.7 (3.7)	40.6 (2.8)	26.6 (3.6)	7.0 (0.8)	0.0 (0.0)
EDUCATION							
0-8 Years	120	511,432	61.3 (11.1)	33.5 (10.0)	5.3 (1.9)	0.0 (0.0)	0.0 (0.0)
9-12 Years	500	2,941,253	30.1 (4.7)	39.5 (4.2)	25.7 (3.3)	4.1 (1.4)	0.6 (0.5)
H.S. Dip. or GED	1,279	6,681,481	9.1 (1.4)	26.8 (1.6)	44.3 (2.1)	17.1 (1.5)	2.7 (0.8)
Some Postsecondary	861	5,154,636	4.9 (1.2)	24.0 (1.4)	42.6 (1.3)	25.2 (1.9)	3.4 (0.5)
College Degree	513	3,601,479	4.0 (1.4)	11.8 (1.5)	31.2 (3.6)	41.3 (3.6)	11.7 (2.5)

*The numbers in parentheses are estimated standard errors.

Race/Ethnicity

Compared with the performance of Black young adults, there are no significant differences between the distributions for Black participants in each of the DOL programs. Except at levels 1 and 5, there also are no differences between Hispanic JTPA applicants and Hispanic young adults. In contrast, significant differences are seen in the distributions of White JTPA applicants and White young adults except at level 3. Larger percentages of White applicants are at levels 1 and 2 — 9.2 and 27.0, respectively — compared with 4.2 and 20.2 for young adults. At levels 4 and 5, 19.3 and 3.2 percent of White JTPA applicants are found as compared with 27.5 and 5.6 percent of White young adults.

As with Black applicants within the two DOL programs, no differences emerge between the distributions of performance for White ES/UI participants and young adults. However, significantly larger percentages of Hispanic participants are shown at level 1, while smaller percentages of Hispanic participants are at levels 4 and 5 when compared with similar subgroups of young adults. The corresponding percentages are 25.7 for ES/UI Hispanic participants at level 1 as compared with 15.9 for Hispanic young adults. At levels 4 and 5, the comparable percentages are 7.0 and 0.0 versus 13.7 and 1.3.

Levels of Education

The entries in Table 6.5 for the quantitative scale indicate considerably more similarities than differences among the three populations. The relatively few differences that do emerge are scattered across the various distributions for JTPA and ES/UI participants. The one notable exception is among ES/UI participants reporting some postsecondary education or a college degree. Generally these groups are more heavily represented at levels 1 and 2 compared with young adults. This picture is very similar to that shown for the document scale.

CHAPTER 7

RELATIONAL ANALYSES

Becoming fully literate in a technologically advancing society is a lifelong pursuit, as is sustaining good health. Both are complex and depend upon a number of factors. Just as there is no single action or step that, if taken, will ensure the physical health of every individual, so there is no single action or step that, if taken, will ensure that every individual will become fully literate.

(Kirsch & Jungeblut, 1986, p. VII-38)

Earlier chapters have been primarily descriptive in nature and, thus, have allowed only a minimum number of variables to be used simultaneously. Interpretations have therefore been limited to exploring the relationships of one or two variables with a third variable. This chapter discusses the results of an explanatory model that relates demographic variables, educational processes, reading practices, literacy outcomes, voting behavior, employment history, and income measures to demonstrated literacy proficiencies. These relational analyses were carried out separately for two independent samples — eligible individuals applying for the JTPA program and those participating in the ES/UI program.

The results are based on an hypothesized path analysis model (Wright, 1934; Pedhazur, 1982) that leads to an ordered sequence of regressions. The ordering follows from both logical and temporal arguments. While the data are cross-sectional, self-reported information about earlier experiences is assumed to affect later outcomes. When no clear temporal ordering can be established, "causal" direction is inferred on the basis of logical arguments. It should be noted that path analysis is not a method for discovering causes, but is a method applied to a causal model posed by the researcher on the basis of knowledge and theoretical considerations (c.f. Pedhazur, 1982). Such modeling attempts to capture the complexity of the relationships among a set of variables as they interact with one another. Wright states in his original work:

> . . . the method of path coefficients is not intended to accomplish the impossible task of deducing causal relations from the values of the correlation coefficients. It is intended to combine the quantitative information given by the correlations with such qualitative information as may be at hand on causal relations to give a quantitative interpretation. (Wright, 1934, p.193)

In summary, path models are primarily useful for marshalling evidence for the disconfirmation of parts, if not all, of a particular model. The fact that the data may be consistent with a given a priori model is in no way a "proof" of the validity of the

model. However, when the data are consistent with a particular assumed causal connection, it would suggest that those variables might be good candidates for manipulation in a more controlled situation.

Figure 7.1 presents the hypothesized explanatory model with the arrows indicating the expected direction of the relationships. This model is similar to one that was proposed and analyzed in the NAEP young adult literacy assessment (Kirsch & Jungeblut, 1986). However, the present analysis extends the earlier model to include both citizenship activities and indicators of participation in the labor market. In addition, the present path model is analyzed separately for the JTPA and ES/UI program participants, as they cannot be considered replicate samples in the strictest sense. It is argued that self-selection factors (i.e., self-selection into one program or another) would make such assumptions very tenuous. At the same time, we have no particular rationale for believing that the overall model should be any more or less appropriate for one population than for the other. Given that stance, we will call attention to differences and/or similarities in the estimated path coefficients when such differences or similarities can be supported by statistical tests.

In any path model, the explanatory variables can be partitioned into two main types -- potentially manipulable and unmanipulable. The unmanipulable variables, such as gender and race/ethnicity, serve as important descriptors and/or control variables, but cannot by themselves be considered legitimate causal variables. Nevertheless, contrasts between racial/ethnic groups, for example, with respect to either their access to positive environments or to their relative literacy performance do provide data for informing policy decisions and, thus, demographic variables will enter into the discussion as appropriate.

Manipulable variables, such as educational process variables, reading practices, and so forth, tend to be more policy relevant in that the behavior being described (e.g., choice of a high school curriculum) can in theory be modified, given the proper supportive environment. Subsequent discussions will put a proportionately greater emphasis on the variables assumed to be modifiable.

As in the case of the young adult assessment, we are interested in exploring the notion of literacy practices as intermediate outcome variables, which are predicted by demographic variables as well as by early home environment and schooling variables. Literacy practices, in turn, are assumed to affect performance on the literacy scales. Unlike the somewhat more limited causal model for the young adult assessment, however, literacy performance as measured by the proficiency scales serves not only as an outcome variable, but is itself a predictor of both reported citizenship activities and selected labor market performance indices.

Figure 7.1 **Hypothesized Path Model Underlying the Relational Analysis for Both the JTPA and ES/UI Populations**

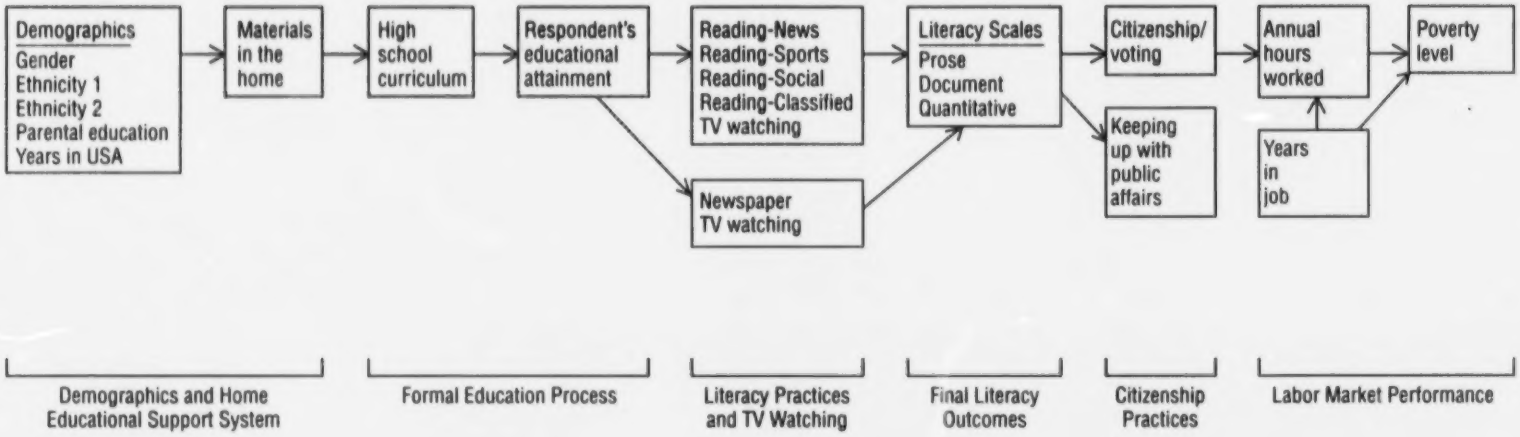


Figure 7.1 indicates that the assumed explanatory model leads to analyses of the following ordered sets of questions within both the ES/UI and JTPA samples.

- How do the individuals' demographic characteristics and family background variables relate to the reported availability of literacy materials in the home while growing up; their selection of high school curriculum; their reported level of educational attainment; their reported reading practices; the amount of television they report watching; their performance on the three literacy scales; their citizenship behavior; and their labor market involvement?
- What are the most influential explanatory variables within individuals' backgrounds (e.g., literacy materials in the home, choice of high school curriculum, educational attainment) with respect to their estimated literacy proficiencies, citizenship practices, and labor market involvement?
- Other things being equal with respect to family background and educational attainment, do different literacy practices have varying impacts on demonstrated proficiencies on the three literacy scales, the indicators of citizenship behavior, and the variables relating to labor market involvement?
- Other things being equal with respect to family background, educational processes, educational attainment, and literacy practices, do differences in levels of performance on the literacy scales relate to either reported citizenship behavior or labor market outcomes? Do the different literacy proficiencies have different relationships with citizenship practices and indices of labor market involvement? For example, do the document and quantitative scales have stronger relationships with participation in the labor market than does the prose scale?

The documentation for the coding of the independent variables is presented in Figure 7.2 at the end of this chapter.

- *Relationship between Background Variables and Literacy Materials in the Home*

Table 7.1 presents the path coefficients associated with the regression of materials in the home while growing up on the demographic variables for the ES/UI and JTPA populations. The table presents the standardized partial regression coefficients (path coefficients), raw score coefficients, standard errors of the raw coefficients, the "t" statistics associated with each raw score regression weight, and the associated multiple correlations. A raw score regression coefficient with a "t" statistic equal to or greater than 2.0 and with a standardized partial regression coefficient (path coefficient) greater than .10 will be considered not only statistically

significant (at the .05 level or higher), but also practically significant (Cohen, 1977). In general, interpretation will only be made of path coefficients that meet the criteria for both statistical and practical significance. The standard errors associated with the raw score regression weights were so derived as to reflect both sampling variability and variability due to imputation. A technical description of these procedures may be found in the NAEP Technical Report (1986).

Table 7.1 reveals that, for both JTPA and ES/UI participants, parental education is the most significant predictor of reported literacy materials in the home while growing up. This finding is in close agreement with the results of the young adult literacy assessment. For JTPA eligible applicants, the only other variable to attain both statistical and practical significance is the number of years lived in the United States. It is a somewhat curious finding that, other things being equal, fewer literacy materials in English were reported in the home during childhood by applicants who have lived in this country the longest. Although Black JTPA applicants report having significantly fewer literacy materials in the home while growing up than do White applicants (Ethnicity 1), the difference does not reach practical significance. There are neither statistical nor practical differences between eligible Black and Hispanic JTPA applicants with respect to literacy materials in the home while growing up.

In the ES/UI population, Hispanic participants report access to fewer literacy materials during childhood than either Black or White participants, while the difference between Black and White respondents reaches neither statistical nor practical significance. In the young adult study, the most salient racial/ethnic relationship was that Hispanic participants tended to report fewer literacy materials in the home than did White 21- to 25-year-olds, but this difference did not quite reach statistical significance.

Table 7.1 **Direct Effects of Explanatory Variables on Literacy Materials in the Home by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat	Raw Reg. Weight	T Stat	Standardized Reg. Weight	Standardized Reg. Weight
Constant	3.378 (0.215)	15.7	3.074 (0.216)	14.3		
Gender	-0.007 (0.086)	-0.1	0.061 (0.084)	0.7	-0.003	0.023
Ethnic 1	0.241 (0.103)	2.3	0.085 (0.132)	0.6	0.080	0.031
Ethnic 2	-0.353 (0.192)	-1.8	-0.446 (0.153)	-2.9	-0.063	-0.141
Par. Ed.	0.387 (0.049)	7.9	0.440 (0.046)	9.5	0.253	0.321
Yrs. USA	-0.015 (0.004)	-3.8	0.000 (0.004)	-0.0	-0.121	0.000
Multiple R	0.326		0.401			
P-Value	0.000		0.000			

Similarly, it is of interest to note that the multiple correlations of .33 and .40 for the JTPA and ES/UI populations, respectively, are quite consistent with that for the young adult group — .36.

- ***Relationship between Background Variables, Materials in the Home, and Selection of High School Curriculum***

Table 7.2 presents the results relating the explanatory variables to selection of high school curriculum for the ES/UI and JTPA populations. The path coefficients associated with parental educational level, years lived in the United States, and availability of literacy materials in the home during childhood were both statistically and practically significant, indicating that those respondents in the DOL populations who chose an academic program in high school were more likely to have resided in this country longer, to come from a home having parents with higher educational attainment, and to have had access to more literacy materials in the home while growing up. These results are entirely consistent with those for young adults.

It is important to note that, *independent* of parental education, the availability of literacy materials in the home had a significant impact on selection of an academic curriculum. Access to literacy materials was also a significant predictor of choice of high school program for the young adults surveyed in 1985, independent of parental education level. For both DOL populations, applicants who chose an academic high school curriculum were likely to have lived in the United States longer than were those who chose another curriculum in high school. In the ES/UI but not in the JTPA population, female respondents were more likely to select an academic program than were the male respondents. This relationship was statistically significant, but it did not reach practical significance. Again, the multiple correlations for the two DOL program participants are comparable to those for the young adults.

Table 7.2 **Direct Effects of Explanatory Variables on High School Curriculum by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	-0.197 (0.061)	-3.2	-0.368 (0.084)	-4.4		
Gender	0.008 (0.022)	0.4	0.061 (0.029)	2.1	0.012	0.069
Ethnic 1	-0.039 (0.026)	-1.5	0.064 (0.046)	1.4	-0.053	0.069
Ethnic 2	0.006 (0.048)	0.1	0.037 (0.053)	0.7	0.004	0.034
Par. Ed.	0.047 (0.013)	3.7	0.102 (0.017)	6.0	0.126	0.222
Yrs. USA	0.003 (0.001)	3.3	0.004 (0.001)	3.1	0.110	0.112
Mat. Home	0.030 (0.008)	3.6	0.035 (0.012)	2.9	0.123	0.105
Multiple R	0.203		0.323			
P-Value	0.000		0.000			

- *Relationship between Background, Educational Support, and Educational Attainment*

Table 7.3 presents the relationships between the background variables, educational support variables (parental education and literacy materials in the home), and participant educational attainment. Not surprisingly, the moderately high multiple correlations — .31 and .49 for JTPA and ES/UI populations, respectively — are driven by selection of an academic curriculum in high school. Respondents who selected an academic high school program were much more likely to report higher levels of educational attainment than were those reporting selection of a nonacademic curriculum. The number of years lived in the United States was also positively related to educational attainment in both populations. Access to literacy materials in the home was significantly and positively related to educational attainment in both DOL populations, but only achieved practical significance for ES/UI participants. Conversely, parental education was significantly and positively related to educational attainment in both populations but only achieved practical significance among eligible JTPA applicants. High school curriculum, literacy materials in the home while growing up, and parental education level were also positively and significantly related to respondent education for young adults in the earlier study.

Table 7.3 **Direct Effects of Explanatory Variables on Respondent's Education by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat	Raw Reg Weight	T Stat	Standardized Reg. Weight	Standardized Reg. Weight
Constant	1.731 (0.118)	14.6	2.227 (0.119)	18.7		
Gender	0.091 (0.042)	2.2	-0.020 (0.041)	-0.5	0.067	-0.015
Ethnic 1	0.038 (0.051)	0.8	0.065 (0.064)	1.0	0.026	0.046
Ethnic 2	0.153 (0.094)	1.6	-0.111 (0.075)	-1.5	0.055	-0.068
Par. Ed.	0.088 (0.025)	3.6	0.056 (0.024)	2.3	0.116	0.081
Yrs. USA	0.013 (0.002)	6.6	0.005 (0.002)	3.1	0.210	0.106
Mat. Home	0.040 (0.016)	2.5	0.065 (0.017)	3.8	0.081	0.127
H.S. Curr.	0.530 (0.064)	8.3	0.504 (0.049)	10.3	0.259	0.332
Multiple R	0.308		0.485			
P-Value	0.000		0.000			

- **Relationship between Background, Educational Support, Educational Attainment, and Newspaper-Reading Practices**

Tables 7.4 through 7.7 present the relationship between background, educational support, educational attainment, and newspaper-reading practices for the ES/UI and JTPA samples. More specifically, Tables 7.4 through 7.7 refer to reading particular newspaper sections with a frequency of at least once a week:

1. National news, state news, editorials, or financial news (Table 7.4)
2. Sports (Table 7.5)
3. Society/women's section; movie, television, and/or book reviews; and, horoscopes (Table 7.6)
4. Movie listings, television listings, advertisements, or the classified section (Table 7.7)

Reading the news sections (Table 7.4) was significantly and positively related to literacy materials in the home during childhood, years lived in the United States, and the level of education of the respondent. These findings were consistent across both the JTPA and ES/UI populations and also attained practical significance.

Table 7.4 **Direct Effects of Explanatory Variables on Reading News Sections by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	0.217 (0.078)	2.8	0.383 (0.080)	4.8		
Gender	0.064 (0.025)	2.6	0.005 (0.023)	0.2	0.081	0.008
Ethnic 1	0.044 (0.030)	1.5	0.010 (0.036)	0.3	0.051	0.014
Ethnic 2	0.076 (0.056)	1.4	0.029 (0.042)	0.7	0.047	0.034
Par. Ed.	–0.003 (0.015)	–0.2	0.006 (0.014)	0.4	–0.007	0.017
Yrs. USA	0.005 (0.001)	4.1	0.003 (0.001)	3.3	0.137	0.121
Mat. Home	0.046 (0.010)	4.8	0.041 (0.010)	4.2	0.162	0.157
H.S. Curr.	0.046 (0.039)	1.2	0.053 (0.029)	1.8	0.039	0.068
Resp. Ed.	0.072 (0.020)	3.7	0.054 (0.020)	2.7	0.125	0.105
Multiple R	0.285		0.285			
P-Value	0.000		0.000			

For both DOL populations, reading the sports section (Table 7.5) was significantly related to being a male and to access to literacy materials in the home while growing up. However, the relationship between literacy materials in the home did not reach practical significance. White respondents were significantly less likely to report reading the sports news than were Black respondents. These results were consistent across both samples and were of practical significance also.

Table 7.5 **Direct Effects of Explanatory Variables on Reading Sports Sections by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	0.374 (0.096)	3.9	0.529 (0.112)	4.7		
Gender	–0.298 (0.031)	–9.7	–0.373 (0.032)	–11.5	–0.303	–0.374
Ethnic 1	–0.139 (0.037)	–3.8	–0.105 (0.051)	–2.1	–0.130	–0.100
Ethnic 2	–0.064 (0.069)	–0.9	–0.068 (0.059)	–1.1	–0.032	–0.056
Par. Ed.	0.011 (0.018)	0.6	–0.016 (0.019)	–0.8	0.019	–0.031
Yrs. USA	0.001 (0.001)	0.6	0.000 (0.001)	0.1	0.021	0.003
Mat. Home	0.027 (0.012)	2.3	0.031 (0.014)	2.3	0.075	0.083
H.S. Curr.	–0.008 (0.048)	–0.2	0.024 (0.041)	0.6	–0.006	0.022
Resp. Ed.	0.041 (0.024)	1.7	0.015 (0.027)	0.5	0.057	0.021
Multiple R	0.333		0.384			
P-Value	0.000		0.000			

Reading the society/women's section, television, movie, and/or book reviews, and horoscope sections (Table 7.6) was related to being a female and to access to literacy materials in the home while growing up. These variables reached both statistical and practical significance for the two DOL populations.

Table 7.6 **Direct Effects of Explanatory Variables on Reading Social Pages by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	0.338 (0.090)	3.8	0.331 (0.104)	3.2		
Gender	0.138 (0.029)	4.8	0.131 (0.030)	4.3	0.154	0.147
Ethnic 1	–0.013 (0.035)	–0.4	–0.004 (0.047)	–0.1	–0.013	–0.004
Ethnic 2	0.066 (0.064)	1.0	–0.044 (0.055)	–0.8	0.036	–0.041
Par. Ed.	–0.024 (0.017)	–1.4	–0.012 (0.018)	–0.7	–0.049	–0.026
Yrs. USA	0.002 (0.001)	1.3	0.000 (0.001)	–0.0	0.044	0.000
Mat. Home	0.063 (0.011)	5.7	0.063 (0.013)	5.0	0.195	0.185
H.S. Curr.	0.070 (0.045)	1.6	0.046 (0.038)	1.2	0.052	0.045
Resp. Ed.	0.025 (0.022)	1.1	0.038 (0.025)	1.5	0.038	0.057
Multiple R	0.262		0.275			
P-Value	0.000		0.000			

In both DOL participant groups, reading of the sections that were primarily of the document type — that is, movie or TV listings, ads, or classified ads — was significantly related only to access to literacy materials during childhood (Table 7.7).

Table 7.7 Direct Effects of Explanatory Variables on Reading Document-like Sections by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	0.620 (0.069)	8.9	0.608 (0.087)	7.0		
Gender	0.038 (0.022)	1.7	0.035 (0.025)	1.4	0.056	0.047
Ethnic 1	0.014 (0.027)	0.5	−0.027 (0.040)	−0.7	0.019	−0.035
Ethnic 2	−0.020 (0.050)	−0.4	−0.037 (0.046)	−0.8	−0.015	−0.042
Par. Ed.	−0.024 (0.013)	−1.8	−0.010 (0.015)	−0.6	−0.063	−0.025
Yrs. USA	0.001 (0.001)	1.1	0.000 (0.001)	−0.1	0.039	−0.005
Mat. Home	0.039 (0.009)	4.6	0.041 (0.011)	3.9	0.160	0.147
H.S. Curr.	0.000 (0.035)	0.0	−0.023 (0.032)	−0.7	0.000	−0.028
Resp. Ed.	0.032 (0.017)	1.8	0.037 (0.021)	1.7	0.064	0.067
Multiple R	0.190		0.174			
P-Value	0.000		0.001			

- *Relationship between Background, Educational Support, Educational Attainment, and Television-Watching Practices*

Table 7.8 presents the path coefficients related to television-watching practices. Television watching refers to time (in hours) spent watching television each day. White and Hispanic respondents in both samples report spending significantly less time watching television than do the Black respondents, and this finding is consistent with the results reported for young adults in the earlier study. The difference between Black and White respondents achieves both statistical and

Table 7.8 Direct Effects of Explanatory Variables on Television Watching by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	5.586 (0.359)	15.6	5.363 (0.366)	14.7		
Gender	−0.064 (0.115)	−0.6	0.064 (0.106)	0.6	−0.018	0.021
Ethnic 1	−0.728 (0.138)	−5.3	−0.912 (0.166)	−5.5	−0.188	−0.279
Ethnic 2	−0.644 (0.256)	−2.5	−0.996 (0.194)	−5.1	−0.089	−0.265
Par. Ed.	−0.002 (0.068)	−0.0	−0.055 (0.063)	−0.9	−0.001	−0.034
Yrs. USA	−0.007 (0.005)	−1.3	−0.005 (0.004)	−1.1	−0.044	−0.042
Mat. Home	0.003 (0.044)	0.1	0.010 (0.044)	0.2	0.002	0.008
H.S. Curr.	−0.362 (0.180)	−2.0	−0.090 (0.134)	−0.7	−0.068	−0.026
Resp. Ed.	−0.143 (0.090)	−1.6	−0.216 (0.090)	−2.4	−0.055	−0.093
Multiple R	0.210		0.243			
P-Value	0.000		0.000			

practical significance in both samples, while the contrast between Hispanic and Black respondents only achieves practical significance for ES/UI participants. Respondent's education has a statistically significant, negative relationship with television watching in the ES/UI population, but the relationship does not achieve practical significance. Similarly, the higher the educational attainment of young adults, the less television viewing was reported. However, young female respondents in the earlier study reported spending more time watching television than did the young male respondents, and parental education was negatively related for young adults while none of the path coefficients for gender or parental education reaches significance for the DOL populations.

- ***Relationship between Background, Educational Support, Educational Attainment, Literacy Practices, Television Watching, and Literacy Proficiency***

The hypothesized explanatory model for performance on the prose scale (Table 7.9) provides good predictive accuracy, with multiple correlations of .63 and .68 in the JTPA and ES/UI samples, respectively. The most salient predictors were choice of an academic high school curriculum, respondent's educational level, and racial/ethnic group membership. Other things being equal, White respondents showed significantly higher means on the prose scale than did Black or Hispanic

Table 7.9 **Direct Effects of Explanatory Variables on Prose Scale by Program**

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	164.204 (10.360)	15.9	141.511 (11.480)	12.3		
Gender	7.705 (3.060)	2.5	4.646 (3.183)	1.5	0.070	0.042
Ethnic 1	21.290 (3.504)	6.1	34.786 (4.612)	7.5	0.178	0.297
Ethnic 2	-4.116 (6.403)	-0.6	-1.266 (5.374)	-0.2	-0.018	-0.009
Par. Ed.	-0.563 (1.697)	-0.3	5.217 (1.721)	3.0	-0.009	0.090
Yrs. USA	0.016 (0.137)	0.1	0.346 (0.124)	2.8	0.003	0.081
Mat. Home	4.420 (1.118)	4.0	1.588 (1.234)	1.3	0.111	0.037
H.S. Curr.	36.079 (4.486)	8.0	17.420 (3.669)	4.7	0.220	0.138
Resp. Ed.	29.616 (2.245)	13.2	25.733 (2.468)	10.4	0.370	0.309
Read-News	15.640 (4.457)	3.5	18.521 (5.090)	3.6	0.112	0.114
Rd-Sports	-12.278 (3.153)	-3.9	-1.165 (3.214)	-0.4	-0.110	-0.010
Rd-Social	5.561 (3.809)	1.5	1.395 (3.881)	0.4	0.045	0.011
Rd-Class.	-1.092 (5.306)	-0.2	0.405 (4.839)	0.1	-0.007	0.003
T.V. Watch.	-2.469 (0.826)	-3.0	-1.184 (0.959)	-1.2	-0.080	-0.033
Multiple R	0.626		0.678			
P-Value	0.000		0.000			

respondents. However, independent of background, educational processes, and educational support system variables, newspaper-reading practices having to do with reading the news sections had both statistically and practically significant, positive relations with prose performance. This was the case for both populations. Reading the sports section was negatively related to prose performance for JTPA applicants, both statistically and practically.

Not surprisingly, both race/ethnicity and respondent educational attainment were salient variables for the 21- to 25-year-olds in the young adult study. However, parental education was also highly predictive of performance on the prose scale for young adults, while this variable reaches statistical significance but not practical significance only for the ES/UI participants in the current DOL survey.

The hypothesized explanatory model for relating demographic and background variables to performance on the document scale (Table 7.10) also provided good predictive accuracy, with multiple correlations of .62 and .65 for the JTPA and ES/UI populations, respectively. These approach the multiple correlation of .68 found in the young adult assessment.

The pattern of significant effects among the demographic, educational support, and educational attainment variables was essentially the same as that for the prose scale. Choice of high school curriculum and respondent education level were also salient variables relating to performance on the document scale. The reported reading

Table 7.10 Direct Effects of Explanatory Variables on Document Scale by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	160.997 (9.027)	17.8	143.350 (11.106)	12.9		
Gender	1.828 (2.666)	0.7	3.822 (3.080)	1.2	0.019	0.037
Ethnic 1	29.380 (3.053)	9.6	39.665 (4.461)	8.9	0.284	0.362
Ethnic 2	-4.026 (5.579)	-0.7	8.931 (5.199)	1.7	-0.021	0.071
Par. Ed.	1.975 (1.479)	1.3	5.105 (1.665)	3.1	0.038	0.094
Yrs. USA	-0.370 (0.119)	-3.1	0.155 (0.119)	1.3	-0.087	0.039
Mat. Home	3.216 (0.974)	3.3	5.213 (1.194)	4.4	0.094	0.131
H.S. Curr.	15.310 (3.909)	3.9	16.404 (3.549)	4.6	0.108	0.139
Resp. Ed.	26.115 (1.956)	13.4	19.271 (2.388)	8.1	0.379	0.248
Read-News	16.954 (3.884)	4.4	16.604 (4.924)	3.4	0.141	0.110
Rd-Sports	-2.720 (2.747)	-1.0	-1.174 (3.109)	-0.4	-0.028	-0.011
Rd-Social	2.349 (3.319)	0.7	-2.281 (3.754)	-0.6	0.022	-0.019
Rd-Class.	4.929 (4.623)	1.1	-2.993 (4.681)	-0.6	0.036	-0.021
T.V. Watch.	-1.231 (0.719)	-1.7	-0.663 (0.928)	-0.7	-0.046	-0.020
Multiple R	0.615		0.649			
P-Value	0.000		0.000			

of the news sections of the newspaper was once again positively and significantly, both statistically and practically, related to performance on the document scale in each DOL population. As with the prose scale, race/ethnicity, respondent level of education, and newspaper reading were the most salient variables for NAEP young adults in relation to performance on the document scale.

White applicants to both programs obtained higher document scores than did either Black or Hispanic applicants. Unlike the prose scale, however, literacy materials in the home while growing up reaches statistical significance for both DOL populations and is practically significant for ES/UI participants, as well. For JTPA applicants, the practical test of significance is not quite reached. Gender is not associated with performance on the document scale.

As shown in Table 7.11, the hypothesized explanatory model for relating demographic and background variables to performance on the quantitative scale achieved multiple correlations of .63 and .65 for the JTPA and ES/UI samples, respectively, as compared with .55 for young adults. Once again, the race/ethnicity contrasts provide a similar pattern to those found in the prose and document scale analyses as well as to that in the earlier study of young adults. In addition to the same pattern of significant effects found between background, educational support, and educational attainment variables, reported reading of the news sections of the newspaper has a significant, positive impact on the quantitative scale performance.

Table 7.11 Direct Effects of Explanatory Variables on Quantitative Scale by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	157.238 (9.498)	16.6	168.472 (11.152)	15.1		
Gender	1.494 (2.805)	0.5	0.560 (3.092)	0.2	0.015	0.005
Ethnic 1	30.933 (3.212)	9.6	38.135 (4.480)	8.5	0.280	0.346
Ethnic 2	1.575 (5.871)	0.3	6.512 (5.221)	1.2	0.008	0.051
Par. Ed.	0.929 (1.556)	0.6	5.101 (1.671)	3.1	0.017	0.093
Yrs. USA	–0.016 (0.125)	–0.1	0.044 (0.120)	0.4	–0.003	0.011
Mat. Home	4.103 (1.025)	4.0	2.348 (1.198)	2.0	0.112	0.059
H.S. Curr.	25.081 (4.113)	6.1	15.663 (3.564)	4.4	0.166	0.132
Resp. Ed.	27.432 (2.058)	13.3	24.135 (2.397)	10.1	0.371	0.309
Read-News	16.425 (4.087)	4.0	14.791 (4.944)	3.0	0.128	0.097
Rd-Sports	0.529 (2.891)	0.2	0.710 (3.122)	0.2	0.005	0.007
Rd-Social	5.935 (3.492)	1.7	–5.687 (3.770)	–1.5	0.053	–0.048
Rd-Class.	–3.725 (4.865)	–0.8	–5.106 (4.700)	–1.1	–0.025	–0.036
T.V. Watch.	–2.174 (0.757)	–2.9	–2.709 (0.931)	–2.9	–0.076	–0.080
Multiple R	0.632		0.650			
P-Value	0.000		0.000			

It is worth repeating that the effect of the practice of reading the news sections is *independent* of racial/ethnic or sex group membership or educational support or attainment. The difference in mean literacy skills between those who report reading the news sections and those who do not is about 15 to 19 points across the literacy scales, depending on the particular scale and/or DOL participant group. To put this relationship into some kind of perspective, the largest contrast found is between Black and White respondents, and that difference in means ranges from about 21 to approximately 40 scale points. The corresponding range in the young adult study was 23 to 38 scale points. There is some evidence that the gap between Black and White respondents is somewhat less in the JTPA population, with differences ranging from 21 on the prose scale to 31 on the quantitative scale.

- ***Relationship between Background, Educational Support, Educational Attainment, Literacy Practices, TV Watching, Literacy Proficiencies, and Voting Behavior***

The dependent variable, voting behavior, is coded "0" if the respondent voted in the last public election and "1" if the respondent indicated "no" or the data were missing. Therefore, the signs of the path coefficients in Table 7.12 are typically negative when related to educational variables, such as respondent's education. Not surprisingly, the more educated the respondent was and the longer he or she resided in the United States, the greater the likelihood that the respondent had voted in the most recent election.

Other things being equal, Black respondents in the ES/UI program were more likely to report voting in the last election than either their White or Hispanic counterparts. The comparison between Black and White JTPA applicants also reaches statistical significance but fails to attain practical significance. Respondents in the ES/UI population with higher scores on the prose scale were also more likely to report that they had voted. This latter finding was not the case for the JTPA applicants. It is somewhat surprising that reported reading of the news sections of the newspaper was not related to most recent voting practice. Nevertheless, the model provides good predictive accuracy and the multiple correlations predicting voting behavior are .54 and .59 for the JTPA and ES/UI populations, respectively.

For the JTPA population, none of the regression weights associated with performance on the literacy scales is statistically significant in predicting voting behavior when the three scores are entered into the analysis simultaneously (Table 7.12). To evaluate the impact of potential collinearity on the estimates of the effects of individual literacy scale scores on voting behavior as well as on the remaining path analysis variables, regressions were recalculated entering scores on each literacy scale separately. These path coefficients estimate the impact of performance on, for example, the prose scale on voting behavior net of other non-literacy explanatory variables.

Table 7.12 Direct Effects of Explanatory Variables on Voting Behavior by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	1.597 (0.125)	12.8	1.516 (0.129)	11.8		
Gender	−0.034 (0.030)	−1.1	−0.025 (0.030)	−0.8	−0.034	−0.025
Ethnic 1	0.093 (0.037)	2.5	0.105 (0.047)	2.2	0.085	0.104
Ethnic 2	0.095 (0.063)	1.5	0.129 (0.051)	2.5	0.047	0.111
Par. Ed.	0.006 (0.017)	0.3	−0.035 (0.017)	−2.1	0.010	−0.070
Yrs. USA	−0.020 (0.001)	−14.7	−0.016 (0.001)	−13.4	−0.445	−0.430
Mat. Home	−0.033 (0.011)	−3.0	0.004 (0.012)	0.4	−0.092	0.012
H.S. Curr.	−0.092 (0.046)	−2.0	−0.007 (0.036)	−0.2	−0.062	−0.006
Resp. Ed.	−0.084 (0.025)	−3.3	−0.103 (0.026)	−4.0	−0.116	−0.143
Read-News	−0.057 (0.045)	−1.3	−0.066 (0.049)	−1.3	−0.045	−0.047
Rd-Sports	−0.024 (0.031)	−0.8	−0.003 (0.031)	−0.1	−0.023	−0.004
Rd-Social	0.024 (0.038)	0.6	−0.028 (0.037)	−0.8	0.021	−0.026
Rd-Class.	−0.027 (0.052)	−0.5	0.035 (0.046)	0.8	−0.019	0.027
T.V. Watch.	0.001 (0.008)	0.2	0.007 (0.009)	0.7	0.005	0.022
Prose	0.000 (0.000)	−0.6	−0.001 (0.000)	−3.1	−0.024	−0.136
Document	0.000 (0.000)	0.2	0.001 (0.000)	1.3	0.008	0.056
Quantitative	−0.001 (0.000)	−1.7	0.000 (0.000)	−1.2	−0.070	−0.052
Multiple R	0.539		0.586			
P-Value	0.000		0.000			

Although not shown in these tables, when the scores are entered separately in the JTPA sample, however, the quantitative scale does attain statistical significance ($t = -2.1$), but the standardized regression weight (−.075) fails to indicate practical significance as it falls below .10. When the literacy scores are entered separately for the ES/UI population, prose is again (as in the above simultaneous analysis reported in Table 7.12) seen to be both statistically and practically significant ($t = -3.4$, standardized weight = −.131). But, in contrast with the results shown in Table 7.12, when entered separately the quantitative score is statistically significant ($t = -2.0$) although not practically significant (standardized weight = −.074) in predicting voting behavior.

The fact that the quantitative scale is a statistically significant explanatory variable for voting behavior in both DOL populations suggests that the other two literacy scales, most notably prose, may be more collinear with the literacy background (e.g., literacy materials in the home while growing up) and practice variables (i.e., reported newspaper reading). To explore further, an estimate of the maximal effect of *demonstrated* literacy proficiency was obtained by regressing voting behavior on a subset of non-manipulable background variables and then allowing the three literacy scores to enter into the equation in a stepwise fashion. This procedure

provides an estimate of the relative salience of the literacy scales as well as estimates of their maximum potential effect.

Table 7.12a shows the associated regression weights, t statistics, multiple correlations, and order of entry of the literacy scales in addition to the effects of the selected subset of non-manipulable variables — ethnicity 1 and 2, gender, years lived in the United States, and years in most current occupation. In this stepwise analysis of maximum potential effect, the quantitative scale proves to be both statistically and practically significant for the JTPA population. The prose scale also reaches statistical significance ($t = -2.5$) but does not quite reach practical significance (standardized weight = –.091). The multiple correlation for the five non-manipulable background variables is .479 for the JTPA population as compared with .539 for the full path model analysis with the literacy scores entered simultaneously (Table 7.12) and reaches .518 when the two significant literacy scores are entered in the stepwise analysis (Table 7.12a).

The results of the stepwise regression analysis are a mirror image in the ES/UI population, with the prose scale attaining both statistical and practical significance while the quantitative scale reaches statistical significance but just falls short of being

Table 7.12a **Stepwise Regression for Voting Behavior Showing Incremental Contribution of the Literacy Scales Beyond Selected Non-Manipulative Variables***

JTPA

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	.110	.120	3.4		
Ethnic 2	.048	.097	1.5		
Gender	–.013	–.013	–.5		
Yrs. USA	–.482	–.021	–14.9		
Yrs. in Job	.063	.033	2.0		
				.479	.001
Quant.	–.139	–.001	–3.8		
Prose	–.091	–.001	–2.5	.518	.000

ES/UI

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	.127	.128	2.8		
Ethnic 2	.130	.151	3.0		
Gender	–.017	–.017	–0.6		
Yrs. USA	–.435	–.016	–12.1		
Yrs. in Job	.011	.001	.3		
				.523	.000
Prose	–.188	–.002	–4.8		
Quant.	–.094	–.001	–2.5	.566	.000

*The background variables were forced in and then the literacy scales were stepped in order of their contribution until no significant increment was attained.

practically significant. The multiple correlation of the five background variables in predicting voting behavior is .523 as compared with .586 for the complete model (Table 7.12) and .566 when the prose and quantitative scores are entered in the stepwise analysis (Table 7.12a).

- *Relationship between Background, Educational Support, Educational Attainment, Literacy Practices, TV Watching, Literacy Proficiencies, and Knowledge of Public Affairs*

Table 7.13 presents the results of the hypothesized explanatory model predicting self-reports of knowledge of public affairs. Individuals who were more likely to report that they kept up with public affairs were also more likely to: 1) be long-term residents in the United States; 2) have attained a higher education level (ES/UI participants only); 3) report reading the news (and for JTPA applicants only, the sports section); and 4) have higher scores on the prose scale (ES/UI participants only). The most salient of the variables was the reading of news sections. It is

Table 7.13 Direct Effects of Explanatory Variables on Keeping Up with Public Affairs by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Constant	0.868 (0.271)	3.2	1.190 (0.288)	4.1		
Gender	−0.102 (0.066)	−1.6	−0.098 (0.068)	−1.4	−0.051	−0.051
Ethnic 1	−0.150 (0.080)	−1.9	0.014 (0.105)	0.1	−0.068	0.007
Ethnic 2	0.059 (0.137)	0.4	0.073 (0.115)	0.6	0.014	0.032
Par. Ed.	0.057 (0.036)	1.6	0.002 (0.037)	0.0	0.051	0.002
Yrs. USA	0.016 (0.003)	5.4	0.013 (0.003)	4.8	0.176	0.172
Mat. Home	−0.018 (0.024)	−0.7	0.016 (0.027)	0.6	−0.024	0.021
H.S. Curr.	0.027 (0.100)	0.3	0.118 (0.080)	1.5	0.009	0.054
Resp. Ed.	0.069 (0.055)	1.3	0.182 (0.058)	3.2	0.047	0.127
Read-News	0.559 (0.097)	5.8	0.531 (0.110)	4.8	0.220	0.190
Rd-Sports	0.212 (0.068)	3.1	0.106 (0.069)	1.5	0.104	0.055
Rd-Social	−0.072 (0.082)	−0.9	−0.052 (0.083)	−0.6	−0.032	−0.024
Rd-Class.	0.073 (0.114)	0.6	−0.099 (0.103)	−1.0	0.025	−0.038
T.V. Watch.	0.006 (0.018)	0.4	0.013 (0.021)	0.6	0.011	0.021
Prose	0.001 (0.001)	1.1	0.002 (0.001)	2.6	0.049	0.125
Document	0.002 (0.001)	1.6	0.000 (0.001)	0.4	0.075	0.021
Quantitative	0.001 (0.001)	1.0	−0.001 (0.001)	−1.0	0.047	−0.049
Multiple R	0.411		0.411			
P-Value	0.000		0.000			

interesting to note that reported television watching showed no relationship with reported knowledge of public affairs in either applicant group.

In contrast to the results of entering the literacy scores simultaneously (Table 7.13), when the literacy scores are entered separately as regressors, both the document and quantitative scales attain statistical and practical significance in the JTPA population (t = 3.1 and 2.4, respectively, and standardized regression weights of .12 and .10, respectively). In the ES/UI population, entering the literacy scores separately achieved essentially the same results as when the scores were entered simultaneously — that is, only the prose scale (t = 2.4, standardized regression weight = .11) was a salient explanatory variable in predicting reported keeping up with public affairs.

The results of the stepwise regression analysis (Table 7.13a) provide a very similar picture to simply entering the literacy scores separately for the JTPA population. The document and quantitative scales enter the regression in that order and are each statistically and practically significant. But, it should be noted that the exercising or practice of literacy skill, as in reporting the reading of the news section of the paper, has an even larger effect — t = 5.8 and standardized regression weight = .22. (See Table 7.13a.)

Table 7.13a **Stepwise Regression for Keeping Up with Public Affairs Showing Incremental Contribution of the Literacy Scales Beyond Selected Non-Manipulative Variables***

JTPA

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	-.103	-.226	-2.9		
Ethnic 2	.015	.061	.4		
Gender	-.059	-.119	-1.9		
Yrs. USA	.165	.015	4.6		
Yrs. in Job	.094	.017	2.6		
				.237	.000
Docum.	.153	.003	3.6		
Quant.	.117	.002	2.8	.330	.000

ES/UI

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	-.030	-.060	-.6		
Ethnic 2	.010	.023	.2		
Gender	-.074	-.142	-2.2		
Yrs. USA	.187	.014	4.6		
Yrs. in Job	.017	.002	.4		
				.265	.000
Prose	.245	.004	6.5	.240	.000

*The background variables were forced in and then the literacy scales were stepped in order of their contribution until no significant increment was attained.

The stepwise procedure also added very little information to help explain the interrelationships within the ES/UI population (Table 7.13a) — only the prose scale was both statistically and practically significant (t = 6.5 and standardized weight = .24).

- ***Relationship between Background, Educational Support, Educational Attainment, Literacy Practices, TV Watching, Literacy Proficiencies, Citizenship Behavior, and Hours Worked in the Last Year***

Table 7.14 presents the results linking hours worked in the last year (on the log scale) with all of the preceding predictors. Prediction of hours worked in the last year was relatively poor for both applicant groups. It should be kept in mind that individuals in these two samples have been somewhat less than successful in the workplace and thus the dependent variable is somewhat restricted in range. The NALS study will include both successful as well as unsuccessful individuals and thus provide a full range of criterion performance on variables such as this. The multiple correlations were .28 and .23 for JTPA and ES/UI program participants, respectively.

Table 7.14 Direct Effects of Explanatory Variables on Annual Hours Worked by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Gender	-0.261 (0.081)	-3.2	-0.065 (0.060)	-1.1	-0.111	-0.041
Ethnic 1	0.144 (0.099)	1.5	0.014 (0.093)	0.2	0.056	0.008
Ethnic 2	-0.037 (0.169)	-0.2	-0.117 (0.102)	-1.1	-0.007	-0.060
Par. Ed.	-0.041 (0.044)	-0.9	-0.026 (0.033)	-0.8	-0.031	-0.031
Yrs. USA	0.001 (0.004)	0.4	0.002 (0.002)	0.9	0.104	0.041
Mat. Home	-0.022 (0.030)	-0.7	-0.009 (0.023)	-0.4	-0.026	-0.016
H.S. Curr.	-0.240 (0.123)	-1.9	0.103 (0.071)	1.5	-0.068	0.057
Resp. Ed.	0.208 (0.068)	3.1	0.046 (0.051)	0.9	0.121	0.039
Read-News	0.168 (0.120)	1.4	0.013 (0.098)	0.1	0.056	0.005
Rd-Sports	0.067 (0.084)	0.8	0.070 (0.061)	1.2	0.028	0.044
Rd-Social	-0.065 (0.100)	-0.7	0.112 (0.073)	1.5	-0.025	0.063
Rd-Class.	-0.116 (0.140)	-0.8	-0.063 (0.092)	-0.7	-0.033	-0.029
T.V. Watch.	-0.010 (0.021)	-0.5	-0.040 (0.018)	-2.2	-0.015	-0.079
Prose	0.000 (0.001)	0.8	-0.000 (0.000)	-0.2	0.038	-0.011
Document	0.003 (0.001)	2.5	0.001 (0.000)	1.4	0.120	0.072
Quantitative	-0.001 (0.001)	-1.1	-0.000 (0.000)	-0.1	-0.050	-0.004
Voting	0.072 (0.088)	0.8	-0.056 (0.069)	-0.8	0.031	-0.034
Pub. Affr.	-0.133 (0.087)	-1.5	-0.032 (0.068)	-0.5	-0.051	-0.017
Yrs. in Job	0.015 (0.007)	2.0	-0.001 (0.004)	-0.3	0.075	-0.011
Multiple R	0.284		0.229			
P-Value	0.000		0.001			

JTPA applicants reporting more hours of employment were more likely: 1) to be males; 2) to have attained higher education levels; 3) to have higher scores on the document literacy scale; and 4) to have worked more years in their most recent job. However, the last variable does not attain practical significance. None of the hypothesized explanatory variables for the ES/UI participants met both criteria for statistical and practical significance and only television watching reached statistical significance; not surprisingly, ES/UI participants who report fewer hours worked also report spending more time watching television.

Entering the literacy scores in separate analyses does not affect the results of the explanatory model shown in Table 7.14. As when the literacy scores are entered simultaneously, only the document scale attains both statistical and practical significance for the JTPA population in predicting the number of hours worked during the year preceding the DOL assessment — $t = 2.8$ and standardized regression weight = .11. None of the literacy scales is a salient explanatory variable in predicting hours worked during the preceding year in the ES/UI population.

Table 7.14a **Stepwise Regression for Annual Hours Worked Showing Incremental Contribution of the Literacy Scales Beyond Selected Non-Manipulative Variables***

JTPA

Explanatory Variables	Standard Regression	Raw Regression	T Stat	Multiple R	P
Ethnic 1	.041	.105	1.1		
Ethnic 2	.004	.018	.1		
Gender	-.113	-.264	-3.5		
Yrs. USA	.042	.004	1.2		
Yrs. in Job	.083	.017	2.3		
				.191	.000
Docum.	.157	.004	4.6	.241	.000

ES/UI

Explanatory Variables	Standard Regression	Raw Regression	T Stat	Multiple R	P
Ethnic 1	.011	.018	.2		
Ethnic 2	-.049	-.094	-.9		
Gender	-.048	-.076	-1.4		
Yrs. USA	.076	.005	1.8		
Yrs. in Job	-.012	-.001	-.3		
				.155	.001
Docum.	.110	.002	2.8	.183	.000

*The background variables were forced in and then the literacy scales were stepped in order of their contribution until no significant increment was attained.

However, in estimating maximal effect using stepwise procedures (Table 7.14a), the document scale proves to be both statistically and practically significant for both the JTPA and ES/UI populations. The document scale enters at the first step in the model using only the subset of non-manipulable variables for both JTPA and ES/UI groups. The resulting *t* and standardized regression weight statistics are 4.6 and .16, respectively, for the JTPA population and 2.8 and .11, respectively, for the ES/UI population.

- **Relationship between Background, Educational Support, Educational Attainment, Literacy Practices, TV Watching, Literacy Proficiency, Citizenship Behavior, Occupational Status, Hours Worked, and Poverty Level**

Table 7.15 presents the results relating the hypothesized predictors with the respondent's poverty-level status. The definition of poverty level for households of up to nine or 10 members is defined in Figure 7.2. As indicated in

Table 7.15 Direct Effects of Explanatory Variables on Poverty Level by Program

	JTPA		ES/UI		JTPA	ES/UI
	Raw Reg. Weight	T Stat.	Raw Reg. Weight	T Stat.	Standardized Reg. Weight	Standardized Reg. Weight
Gender	0.085 (0.028)	3.0	0.036 (0.036)	1.0	0.104	0.037
Ethnic 1	−0.049 (0.034)	−1.4	−0.062 (0.056)	−1.1	−0.055	−0.060
Ethnic 2	−0.128 (0.058)	−2.2	−0.142 (0.062)	−2.3	−0.078	−0.120
Par. Ed.	−0.022 (0.015)	−1.4	−0.024 (0.020)	−1.2	−0.048	−0.047
Yrs. USA	0.003 (0.001)	2.0	0.001 (0.001)	0.8	0.085	0.037
Mat. Home	−0.023 (0.010)	−2.2	−0.029 (0.014)	−2.1	−0.078	−0.078
H.S. Curr.	−0.156 (0.042)	−3.7	−0.034 (0.043)	−0.8	−0.128	−0.031
Resp. Ed.	−0.008 (0.023)	−0.4	−0.005 (0.031)	−0.2	−0.014	−0.007
Read-News	0.045 (0.041)	1.1	0.069 (0.059)	1.2	0.043	0.048
Rd-Sports	−0.005 (0.029)	−0.2	−0.053 (0.036)	−1.5	−0.006	−0.054
Rd-Social	−0.011 (0.035)	−0.3	−0.054 (0.044)	−1.2	−0.013	−0.049
Rd-Class.	0.037 (0.048)	0.8	0.091 (0.055)	1.6	0.031	0.068
T.V. Watch.	0.003 (0.007)	0.4	0.012 (0.011)	1.1	0.014	0.039
Prose	−0.001 (0.000)	−2.4	−0.000 (0.000)	−0.4	−0.109	−0.018
Document	0.001 (0.000)	3.1	−0.001 (0.000)	−2.8	0.149	−0.143
Quantitative	−0.000 (0.000)	−0.6	−0.000 (0.000)	−0.3	−0.026	−0.015
Voting	−0.023 (0.030)	−0.8	0.044 (0.042)	1.0	−0.028	0.043
Pub. Affr.	0.027 (0.030)	0.9	0.006 (0.041)	0.1	0.030	0.005
Yrs. in Job	−0.008 (0.002)	−3.3	−0.001 (0.002)	−0.7	−0.122	−0.026
Hours Yr.	−0.026 (0.011)	−2.3	−0.037 (0.021)	−1.8	−0.075	−0.060
Multiple R	0.301		0.291			
P-Value	0.000		0.000			

Figure 7.2, individuals who were coded "0" were above the poverty line, while those coded "1" were below the poverty threshold.

Among JTPA applicants, poverty level is most strongly related to being a female and to having selected a nonacademic high school curriculum. As might be expected, lower demonstrated prose proficiency (with its stronger association to schooling) is related to being below the poverty level, but it is surprising that *higher* demonstrated document proficiency is also statistically associated with poverty. For JTPA applicants, poverty level is also associated with being Black, having limited access to literacy materials in the home during childhood, working fewer hours during the year preceding the DOL assessment, and the number of years worked in most recent occupation. Of these "working" variables, only the number of years worked in one's occupation achieved both statistical and practical significance.

ES/UI participants from poverty-level households are more likely to be from Black than Hispanic minority groups, to have low scores on the document scale, and to have worked in low-level occupations. As with JTPA applicants, limited access to literacy materials in the home while growing up was associated with poverty level but did not reach practical significance.

Including the literacy scales singly yielded virtually no change from the results reported above when they were entered simultaneously. It had been hoped that at least the sign of the document regression weight would change from positive to negative in the JTPA sample, which would make it more consistent with the coding of the poverty level outcome measure.

Table 7.15a indicates that in the JTPA sample the prose scale enters first in the second stage of the stepwise analysis with the expected sign (i.e., negative) and then the document scale enters with a positive sign. There appears to be some sort of suppressor effect present here. It is doubtful that such an effect would be replicated in an independent sample. The smaller model limited to primarily non-manipulable variables as regressors yielded the same result as the full model for the ES/UI sample. That is, only the document scale attained both statistical and practical significance.

• Summary

The analyses described in this chapter followed from four ordered sets of questions based on the explanatory model depicted in Figure 7.1. As with the earlier young adult literacy assessment, these questions address the relationships among various demographic and background variables with performance on the three literacy scales. The model in the current DOL study goes further to assess the impact of both demographic and background variables as well as demonstrated literacy proficiencies on indicators of citizenship behavior and, ultimately, of all of these on various labor-market indices.

By and large, gender proved to be neither a very consistent nor very powerful predictor for the JTPA and ES/UI participant groups. Nor was race/ethnicity a salient

Table 7.15a **Stepwise Regression for Poverty Level Status Showing Incremental Contribution of the Literacy Scales Beyond Selected Non-Manipulative Variables***

JTPA

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	−.051	−.045	−1.4		
Ethnic 2	−.072	−.121	−2.1		
Gender	.138	.113	4.2		
Yrs. USA	.110	.004	3.0		
Yrs. in Job	−.120	−.009	−3.3		
				.194	.000
Prose	−.179	−.001	−4.3		
Docum.	.106	.001	2.5	.237	.000

ES/UI

Explanatory Variables	Standard Regression	Raw Regression	T Stat.	Multiple R	P
Ethnic 1	−.072	−.074	−1.4		
Ethnic 2	−.092	−.108	−1.8		
Gender	.059	.058	1.7		
Yrs. USA	.028	.001	.7		
Yrs. in Job	−.027	−.002	.7		
				.137	.008
Docum.	−.221	−.002	−5.7	.237	.000

*The background variables were forced in and then the literacy scales were stepped in order of their contribution until no significant increment was attained.

predictor, with a few notable exceptions. In each program, White program participants demonstrated higher levels of literacy proficiencies than did Black or Hispanic participants but, unlike most large-scale assessment findings, Black and Hispanic participants performed at much the same level.

Family background, in particular parental education, had a relatively strong relationship with reading materials in the home. More importantly, access to reading material in the home *independent* of parental educational level had a significant impact on choosing to enter the academic curriculum in high school. Reading materials in the home continued to show statistically significant effects against educational criteria such as educational attainment independent of other background factors, including selection of the academic curriculum. The significant relationships found between access to reading materials in the home and desired educational goals suggest the key role that the availability of the printed word plays in helping to develop one's marketable skills, as defined by successful educational preparation.

While access to reading materials appears to be an important manipulable variable, the question arises as to the importance of reading practices in the development of literacy proficiencies and, eventually, for success in the labor market. The path model results were consistent with the hypothesis that reading practices, such as reading the news sections of the newspaper, should relate to performance on the literacy scales. The assumption here is that since the reading behaviors refer to past as well as present behaviors they are in a sense prior to the present measurement of literacy skills.

The final link in the hypothesized "causal" chain was the verification of the relationship (independent of background and educational process and attainment) between measured literacy proficiencies and labor market outcomes, such as hours worked and poverty status. The results are encouraging in that there appears to be some empirical evidence supporting a "causal" chain among the manipulable variables, beginning with access to reading materials, which affects reading practices, which affects literacy proficiency, which, in turn, has a positive impact on labor market outcomes.

Figure 7.2

DOL Phase I – JTPA and ES/UI Path Analysis Variables

1	Gender	
	0	Male
	1	Female
2	Ethnicity 1	
	1	White
	0	Black and Hispanic
3	Ethnicity 2	
	1	Hispanic
	0	White and Black
4	Parental education	Highest education used, Questions 27 & 28
	1	Less than high school
	2	Some high school
	3	High school graduate, vocational school after high school, less than two years college, two years or more of college/no degree, I don't know Missing
	4	A.A. degree, college graduate, postgraduate/no degree, postgraduate/degree
5	Respondent's education	Questions 15 and 22 (GED)
	1	Less than high school
	2	Some high school
	3	High school graduate, vocational school after high school, less than two years college, two years or more of college/no degree, I don't know Missing GED
	4	A.A. degree, college graduate, postgraduate/no degree, postgraduate/degree
6	High school courses	Question 18
	1	College preparatory
	0	All others (1, 2, and missing)

7	Materials home	Question 29, Sum of reading materials in the home
	0	No reading materials
	1	One piece
	2	Two pieces
	3	Three pieces
	4	Four pieces
	5	Five pieces
	6	Six pieces
8	Newspaper	Question 71, Number of parts read
	0 - 13	Sum of parts
9	T.V. watching	Question 34, Hours spend watching TV each day
	1	None
	2	1 hour or less
	3	2 hours
	4	3 hours and missing
	5	4 hours
	6	5 hours
	7	6 or more hours
10	NAEP scale	
11	Prose scale	
12	Document scale	
13	Quantitative scale	
14	Employment	Question 35, 38, and 39
	1	Employed, Question 35 equal '1'
	0	Unemployed, Questions 38 and 39 equal '1'
15	Voting	Question 32, Voted in public election
	0	Yes
	1	No and missing
16	Positive statement	Positive statement about employment
	1	employed (Q 35), in school or keeping house (Q 38)
	0	Q 35 equal 2, or Q 38 equal 1, 4, or missing

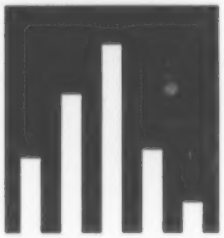
17	Weeks worked	Question 40
	1	Zero weeks
	2	1 - 13 weeks
	3	14 - 26 weeks
	4	27 - 39 weeks
	5	40 and above
18	Poverty threshold	Poverty/Near poverty status
	0	Not poor, Q 67 equals 6, 7, or 8
	1	poor or near poor, Q 63 and Q 67
		household size equals 1 or 2, and income < 9,999
		household size equals 3 or 4, and income < 14,999
		household size equals 5 or 6, and income < 19,999
		household size equals 7, 8, 9, or 10, and income < 29,999
19	Reading practice 1	Q 69 equals 1, 2, or 3 and Q 71 parts marked yes
	1	Reads English newspaper at least once a week, sections – national, state, editorial or financial
	0	Other
20	Reading practice 2	Q 69 equals 1, 2, or 3 and Q 71 parts marked yes
	1	Reads English newspaper at least once a week, sections – sports
	0	Other
21	Reading practice 3	Q 69 equals 1, 2, or 3 and Q 71 parts marked yes
	1	Reads English newspaper at least once a week, sections – society/women, movies, TV, book review, or horoscope
	0	Other
22	Reading practice 4	Q 69 equals 1, 2, or 3 and Q 71 parts marked yes
	1	Reads English newspaper at least once a week, sections – movies, TV, advertisements, or classified
	0	Other

23	Occupation	Question 49, Most recent employment	
	1	Laborer	Code 51
	2	Service	Codes 46 - 50
	3	Operative	Codes 33 - 34
	4	Clerical	Codes 21 - 32
	5	Craft	Codes 36 - 45
	6	Sales	Codes 18 - 20
	7	Technical	Codes 3, 10-11, and 15
	8	Professional	Codes 4-9, 12-14, and 16-17
	9	Manager	Codes 1 and 2
24	Weeks worked	Question 40	
	0 - 52	weeks	
		missing and greater than 52 equals blank	
25	Hours worked	Annual hours worked, Q 40 weeks * Q 43 hours	
		weeks equal 0 - 52 and hours equal 0 - 80 (log)	
26	Hourly wage	Question 44	
		Hourly wage if employed, see number 14 (log)	
27	Annual earnings	Q 40 weeks * Q 43 hours * Q 44 hourly wage (log)	
28	Employed last week	Question 35	
	0	No	
	1	Yes	
29	Hourly wage	Question 37, Hourly wage last week (log)	
		Hourly wage last week if Question 35 equals 'yes'	
30	Hours worked	Question 36, Hours worked last week	
		Hours worked if Question 35 equals 'yes'	
31	Earned last week	Q 36 * Q 37 (log)	
32	Apprenticeship	Q 23 Yes, then Q 24 / 52 (weeks)	
33	Vocational, technical	Q 23 Yes, then Q 24 / 52 (weeks)	
34	Employer-provided	Q 23 Yes, then Q 24 / 52 (weeks)	
35	Military-provided	Q 23 Yes, then Q 24 / 52 (weeks)	
36	Country born in	Question 1, State or territory born in	
	0	USA and missing	
	1	All others	

37	Years in USA	Q 3, If foreign born, if born in the USA or missing Q 3, Then actual age
38	Frequency of reading	Q 50, Sum of a b, c, and d reversed, 1=never
39	Frequency of writing	Q 51, Sum of a, b, c, and d reversed, 1+never
40	Frequency of math	Q 52. Mathematics on the job
	1	Never
	2	Less than once a week
	3	Once a week
	4	A few times a week
	5	Every day
41	Actual age	
42	Household income	Q 67
	1	< $5000
	2	$5000 - $9999
	3	$10000 - $14999
	4	$15000 - $19999
	5	$20000 - $29999
	6	$30000 - $39999
	7	$40000 - $49999
	8	$50000 +
	blank	Missing data, refused, or I don't know
43	Public affairs	Q 33, Follow what's going on – Reversed
	1	Hardly at all } "1"
	2	Only now and then }
	3	Some of the time } "0"
	4	Most of the time }
44	Sample	
	0	ES/UI
	1	JTPA
45	Years in job	Q 41, Actual years in last occupation

CHAPTER 8

SUMMARY AND RECOMMENDATIONS



What remains of the old industrial base are mostly printing companies, metalworking plants, and food processors — Where manufacturing provided 36 percent of all employment as recently as 1960, it accounts for only one job in five now. Instead jobs in banking, insurance, and other aspects of finance have opened for the middle class; those whose lack of education would once have restricted them to factory work must now resort to jobs in less lucrative service industries. The Chicago that Sandburg called "Tool Maker, Stacker of Wheat" is increasingly the city of the broker and the data processor on the one hand and the hotel maid on the other.

(Conniff, 1991)

Growing concern over the adequacy of America's current education and training system to meet rapid technological, economic, and labor market changes led the United States Department of Labor to award Educational Testing Service a contract to assess the literacy skills of Job Training Partnership Act (JTPA) and Employment Service/Unemployment Insurance (ES/UI) program participants. In 1990, random samples of 2,501 eligible JTPA applicants in 14 states and 3,277 ES/UI participants in 16 states responded to a 20-minute background questionnaire and an assessment booklet with, on average, some 40 literacy tasks. These instruments were administered by trained JTPA and state agency office staff during interviews that required about one and one-half hours.

Building on earlier work with the NAEP young adults and ongoing research at ETS, the DOL assessment incorporated the following tasks: *prose tasks* that involve reading newspaper articles, editorials, and stories; *document tasks* that are based on job applications, payroll schedules, and maps; and basic mathematics or *quantitative tasks* involving a bank deposit slip, order form, and an advertisement for a loan. Such familiar tasks were purposefully chosen to simulate the range of literacy tasks adults face every day. The pool of literacy tasks included those used by NAEP in 1985 with a nationally representative sample of 21- to 25-year-olds and tasks newly developed for the DOL assessment — for a total of some 180 tasks.

In reporting the results, the DOL assessment follows a profile approach that views literacy not as a single dimension along which a single point or standard can be selected to separate the "literate" from the "illiterate," but rather as a set of complex information-processing skills that go beyond decoding and comprehending school-like prose material. This approach seems particularly pertinent for assessing literacy proficiencies relevant to the workplace since it focuses on the application of skills in situations that adults need to cope with on a regular basis. The DOL survey goes

beyond the earlier young adult assessment by identifying and describing five levels of literacy proficiency and the associated information-processing skills required for successful performance at each of these five levels on the prose, document, and quantitative scales.

As derived in Chapter 5 and presented here, the performance levels identified are grounded in both a theoretical and an empirical base. Not surprisingly, the tasks become more demanding and the associated skills become increasingly more complex as the reader moves successfully up the literacy scales from level 1 through level 5. In combination with a set of broad demographic and background variables — i.e., gender, age, race/ethnicity, education, and employment history — these literacy levels along with mean proficiency scores provide a way to characterize populations. The following summary highlights the assessment results for the JTPA and ES/UI populations.

For Total JTPA and ES/UI Populations

- In all, on each of the three literacy scales some 40 to 50 percent of the eligible JTPA applicants and roughly 40 percent of the ES/UI program participants demonstrate literacy skills that are in the two lowest levels — that is, levels 1 and 2. At these levels, 40 to 50 percent of the DOL populations demonstrate success on tasks that require only relatively low-level information-processing skills. Taking into account the appropriate sample weights, then, as many as **500,000** eligible JTPA applicants and **7,500,000** ES/UI participants are estimated to demonstrate limited literacy skills as assessed in this survey. It seems quite likely that the evident literacy skills at these levels would place severe restrictions on full participation in our increasingly complex society, including the workplace, for these large numbers of eligible DOL clients.

- On each of the three literacy scales, scores from 276 to 325 define level 3 or the middle performance level. Depending on the particular scale, some 35 to 39 percent of the eligible JTPA applicants and ES/UI participants demonstrate skills in the level 3 range. For the JTPA population, these percentages represent from about **385,000** to **430,000** men and women, while for the ES/UI population, roughly **6,600,000** to **7,000,000** individuals are estimated to score within level 3. Although there is considerable room for improvement, it is likely that individuals performing at level 3 are not experiencing major difficulty in dealing with literacy materials they encounter most frequently in their everyday lives. In fact, these men and women are performing at about the same level as DOL program participants who report earning a high school diploma.

Summary Description of the Five Literacy Levels

LEVEL 1: Less Than 225 on the Literacy Scales

Tasks falling within this range on the three literacy scales are the least demanding in terms of what a reader must do in order to produce a correct response. In general, prose and document tasks at this level require a reader to identify and enter information from personal knowledge or to locate a piece of information in which there is a literal match between the question and the stimulus material. If a distractor or plausible answer appears in the stimulus material, it tends to be located away from where the correct information is found. Although no quantitative tasks used in this assessment fell within this level, experience suggests that such tasks would require the reader to perform a single, relatively simple arithmetic operation (such as addition or subtraction) for which either the numbers are already entered onto the document and the operation is given or the numbers are provided and the operation does not require the reader to borrow or carry.

LEVEL 2: 226-275 on the Literacy Scales

Prose and document literacy tasks falling within this range are more varied in terms of the demands placed on readers. Some of these tasks still require the reader to locate and match on a single literal feature of information; however, these tasks tend to occur in materials in which there are several distractors or where the match is based on synonymous or text-based inferences. Prose and document tasks at level 2 also begin to require readers to integrate information by either pulling together two pieces of information or by comparing and contrasting information. Quantitative tasks at this level typically require the use of one arithmetic operation based on numbers that are either stated in the question or easily located in the document through a literal one-feature match. Moreover, the operation needed to complete the task is either stated in the question or easily determined based on the format of the problem — for example, entries on a bank deposit slip or on an order form.

LEVEL 3: 276-325 on the Literacy Scales

Prose tasks at this level tend to require the reader to search fairly dense text for literal or synonymous matches on the basis of more than one feature of information or to integrate information from relatively long text that does not contain organizational aids such as headings. Document tasks at this level tend to require the reader to integrate three or more features of information from rather complex tables or graphs in which distractors are present in the same row or column. What appears to distinguish quantitative tasks at this level is the fact that two or more numbers or quantities needed to solve the problem must be identified from various places in the material. Also, the operation(s) needed to complete the task is typically determined from arithmetic relation terms in the question, such as "How many" or "What is the difference."

LEVEL 4: 326-375 on the Literacy Scales

Tasks in this range continue to demand more from the reader. Not only are multiple-feature matching and integration of information from complex materials maintained, the degree of inferencing required by the reader is also increased. Tasks at this level include conditional information that must be taken into account by the reader in order to integrate or match information appropriately. Quantitative tasks at level 4 tend to require two or more sequential operations or the application of a single operation where either the quantities or the operation must be determined from the semantic information given or from prior knowledge.

LEVEL 5: 376 and Higher on the Literacy Scales

Tasks falling within this range tend to place the greatest demands on the reader. Typically, they require the reader to search for information in dense text or complex documents containing multiple plausible distractors, to make high text-based inferences or use specialized background knowledge, as well as to compare and contrast sometimes complex information to determine differences. Similarly, the quantitative tasks at this level require the reader to disembed features of a problem from various parts of a stimulus or to rely heavily on background knowledge to identify both the quantities and the operations needed to complete a task successfully.

- About 15 to 20 percent of JTPA applicants and 20 to 25 percent of ES/UI participants demonstrate proficiencies at the highest levels, either level 4 or 5. That means that some 165,000 to 220,000 JTPA applicants and roughly 3,800,000 to 4,700,000 ES/UI participants demonstrate skill at the highest levels. Individuals scoring at these two highest levels for the most part demonstrate proficiency in coping with complex printed or written material whether in prose or document format or that require the application of arithmetic operations.

- Background variables useful in predicting literacy proficiencies were the education levels attained by the DOL program participants and their parents, participants' choice of an academic high school curriculum, their access to reading materials in the home while growing up, and spending time reading the news and editorial sections of the newspaper. Literacy proficiency is also associated with voting behavior, interest in keeping abreast of public affairs, and years worked in the most recent job.

For Racial/Ethnic Subgroups Within the DOL Populations

- Minority participants in the two DOL programs scored, on average, below their White counterparts on each of the three literacy scales, reflecting yet another effect of the poverty and low socioeconomic status disproportionately present among Black and Hispanic populations.

- Contrary to other nationally representative databases, Black and Hispanic JTPA and ES/UI participants, while not very different from each other in terms of their average proficiency scores, are disproportionately represented at the low and high levels on each of the three scales. For example, on the prose scale, twice the percentage of both the Black and Hispanic DOL populations demonstrated proficiencies at levels 1 and 2 compared with the White DOL populations — that is, some 50 to 60 percent as compared with 25 to 30 percent, respectively. Conversely, only 8 to 12 percent of Black and Hispanic JTPA and ES/UI participants attained levels 4 and 5 compared with 25 to 40 percent of White program participants.

For DOL Participants Reporting Various Levels of Education

- It is not too surprising that the largest percentages of JTPA and ES/UI participants performing at level 1 are adults with severely limited educational experiences — those reporting zero to eight years of schooling. As to be expected, the largest percentages achieving levels 4 and 5 are found among those program participants who report earning a two-year college degree or more.

- Of particular concern is the fact that a substantial percentage of individuals who report earning a high school diploma or GED demonstrate very limited skills. A total of some 30 to 45 percent of JTPA and ES/UI participants who report this level of education are estimated to have skills associated with performance at level 1 or level 2.

- Among JTPA and ES/UI program participants without a high school diploma, those demonstrating higher literacy levels are more likely to pursue the GED than those demonstrating lower levels of skills. Moreover, among those who report studying for the GED, literacy scores also seem to discriminate between those who report receiving the certificate and those who say they did not obtain it. The difference in mean proficiency scores ranges from 35 to 50 points or a full standard deviation in favor of those who attain the certificate. For example, on the prose scale, the difference for JTPA eligible applicants is 295 as compared with 247, while among ES/UI participants the difference is 291 versus 240. For both DOL client groups, demonstrated literacy proficiencies of GED certificate holders are similar to the proficiencies of high school graduates in the DOL populations.

Past Employment Experiences Within the DOL Populations

- Individuals in the DOL programs who demonstrate higher levels of literacy skills tend to avoid long periods of unemployment, earn higher wages, and work in higher level occupations than those program participants who demonstrate lower literacy skills.

- Literacy levels of those reporting various occupations differ considerably on each of the three literacy scales. In fact the range of mean proficiency scores extends almost a full standard deviation or 50 points. As an example, those program participants who report working in professional occupations demonstrate average prose and quantitative proficiencies around 320 compared with those who report working in laborer and service occupations — here the mean scores are about 270.

- On each of the three scales, those who report longer periods of employment in the year preceding the assessment demonstrate higher levels of proficiency than their counterparts who report fewer weeks of employment. Of those who report zero to 13 weeks of employment, about 16 to 19 percent of JTPA and 19 to 22 percent of ES/UI participants demonstrate proficiency in the level 1 range. In contrast, only 8 to 10 percent of the DOL program participants who report working at least 40 weeks in the preceding year perform in the range defined as level 1.

- At least 90 percent of the JTPA and ES/UI program participants report that their reading, writing, and mathematics skills were adequate for performance in their most recent jobs. Nevertheless, those individuals with zero to eight years of education consistently perceive their skills to be more limited in regard to the needs of their previous jobs — overall, some 15 to 40 percent of those who dropped out of school before high school report their skills to be deficient, with the largest percentages in the areas of writing and mathematics.

- Some 65 and 60 percent of JTPA and ES/UI program participants, respectively, perceive that they could get a "better" job if their reading or writing skills were improved and roughly 80 and 70 percent, respectively, report that their job opportunities would improve with increased skill in mathematics.

• Implications of the Assessment Results for Policy Issues

It is now appropriate to examine the results of this DOL survey as they may relate to broad human resource issues. Here concern is not simply with descriptions of the status quo or even with identifying the nature of apparent literacy problems among the JTPA or ES/UI populations. Rather, the concerns lie with the insights that the results might yield in terms of both short- and long-term approaches for program providers as well as for broader policy decisions that will address the problems for the future.[1]

> *Given the diversity of our national population and the fact that the high school diploma no longer apparently certifies a baseline of competencies, what is needed is outcome measures that ensure comparability across individuals and time periods. Examples of existing programs that use national measures ensuring comparability include the SAT and ACT for college admissions and the ASVAB for military service. What policymakers and business leaders may need are similar information systems applicable to diverse adult worker populations making transitions from school to work or from job to job.*

The impetus for the increased attention to learner outcomes within, for example, the design and management of publicly supported programs arises out of continuing concerns with program accountability from diverse sectors of society and from employer dissatisfaction with the repertoire of skills demonstrated, on average, by the nation's work force. The data from this DOL assessment support these concerns in that large numbers of program participants, including those reporting either a high

[1] Many of the insights, ideas, and suggestions of the assessment advisory panelists were helpful in preparing the following discussions, but the selection of issues, the words, and the explications are those of the authors.

school diploma or a GED, demonstrate success ***primarily*** on tasks that require locating a single piece of information, entering personal background information, or solving a simple, one-step problem. In contrast, they demonstrate deficiencies in integrating information across sentences or parts of a document, in generating ideas based on what they have read, in attending to multiple features of information contained in complex texts or displays (which may require comparing and contrasting information), and in sequentially applying more than a single arithmetic operation in conjunction with written material. To address these concerns adequately, integrated information systems combining background (including, for example, data on the individual as well as the broader contexts of the program or job) and assessment information will need to be developed that yield data at the program, state, and national levels including appropriate sets of criteria or standards. Any such system should address the three design criteria — relevance, comparability, and interpretability — discussed in Chapter 1 of this report.

Several interrelated developments are under way that are germane to the emergence of such a national system. First, recent legislation establishing the Job Opportunities and Basic Skills (JOBS) program, amending the authorization of federally supported vocational education and adult education programs, calls for the establishment of performance standards systems that include measures of learner outcomes. These requirements have generated much interest and activity at both state and local levels.

In addition, it is generally perceived that while JTPA programs, especially those for young teens, assess the basic reading and mathematics skills of participants at program entry, post-testing is not pursued as rigorously or as comprehensively, and changes in performance are not systematically reported to DOL at the end of the training period. Pending amendments to JTPA legislation would require the incorporation of standards of learning outcomes for adults within the programs' existing performance standards system.

A second cluster of activity relates to the establishment of industry-based skill standards to serve as the basis for a voluntary national system of skill certification and performance standards for job training programs. The United States Departments of Education and Labor are about to embark on major initiatives with the private sector to establish such industry-based skill standards. It has been argued that any such system should adequately address the issues of relevance, comparability, and interpretability in order to deal with accountability concerns involving changes over time and across groups, and validity concerns involving the understanding of what is being measured as well as the intended and unintended consequences of that measurement.

Moreover, the President has recently announced his Job Training 2000 initiative, which is a comprehensive federal job training system that is designed to meet the

nation's work force needs into the 21st century. Among its many features, this initiative proposes to establish accountability and information systems to ensure a world-class job training system. For example, the administration proposes that each citizen eligible for federal assistance for education or training have access to a Lifetime Education and Training Account consisting of grants and loans. Individuals will be encouraged to use the account throughout their lives to continue their education and update their skills.

> *If literacy proficiency is to be used as an important indicator of our nation's human resource capability, then it is necessary to learn more about the literacy requirements of key job families or related occupations.*

Beginning with the literacy assessment of young adults and continuing with this assessment of JTPA and ES/UI populations, the conceptualization and measurement of adult literacy provides a set of benchmarks of information-processing skills associated with various levels of proficiency along each of the three literacy scales. Needed, in addition, are research studies that establish relationships between the literacy scales and occupation-related criteria in key job families that serve in much the same way that standardized grade-level scores function in K through 12 school-based situations and that the SAT and ACT function in college admission work.

Research can determine how grade-equivalent scores function and how they are related to performance in a given school or district in much the same way that research can determine the range of SAT or ACT scores and their association with performance at a given college. The need exists for a similar exploration of literacy proficiencies as they relate to various jobs or job families. These relationships should be studied for recent entrants as well as for those individuals with at least several years of experience in a given occupation.

Results reported here from the current DOL assessment as well as secondary analyses of the young adult assessment (Barton & Kirsch, 1990) provide a first estimate of the literacy proficiencies of individuals in various occupational categories. However, we do not recommend using the data from either the DOL or young adult surveys in a definitive way since neither one provides a representative sample of individuals employed in particular occupational categories nor a representative sample of adults currently in the work force. Results from the upcoming National Adult Literacy Survey will yield a representative sample of individuals aged 16 and above currently in the work force by type of occupation, thereby providing a more systematic look at these relationships.

Research on the literacy skills of the nation's work force highlights the dearth of information available on the literacy skill requirements of jobs at both career entry and at more experienced levels. It would be possible to conduct literacy audits for a reasonable number of occupations that would help to identify literacy tasks frequently

encountered in these jobs. Analyses of occupational literacy requirements could be accomplished using the framework described in this report (Chapter 5) to identify the information-processing skills associated with successful performance. Using a common framework for determining the necessary requirements as well as for measuring demonstrated proficiencies would enhance and extend the knowledge of both the nature and the extent of any gap that currently exists.

If publicly sponsored programs are to serve those individuals with the greatest need, increased attention should be focused on the recruitment process.

The data from this assessment suggest that a self-selection bias exists among the eligible Black applicants to JTPA programs. Typically, with nationally representative population samples, mean achievement scores for the White subgroup surpass those for the Black subgroup by roughly a full standard deviation, while those for the Hispanic subgroup fall about midway between the means for White and Black subgroups. In contrast to these expectations for nationally representative populations, the subgroup means for the Black and Hispanic JTPA populations are not statistically different from each other and are about 60 percent of a standard deviation or some 30 points on the literacy scales below the means for the White subgroup. It is the relationships among the subgroup means that are important in this instance, not the specific mean scores obtained.

Thus, Black men and women who apply and are eligible for participation in JTPA programs demonstrate, on average, higher literacy skills than would be expected if this subgroup of JTPA participants were a nationally representative sample of the Black subpopulation. One possible explanation is that Black individuals with more limited literacy skills may not view the JTPA program as a viable option to prepare themselves for the work force because they evidently do not even apply for JTPA services. If these less-well prepared Black men and women are to be served by JTPA in the future, it would seem that a strong recruitment effort will have to be initiated by DOL.

Today, rapid technological, economic, and labor market changes demand that we pay increasing attention to the skill deficiencies of those already in the work force since it is estimated that upwards of 80 percent of the projected work force for the year 2000 is already employed. As a result, the Department of Labor should work to ensure that adequate literacy programs are available to those program participants who demonstrate low skill levels.

The findings of this assessment clearly show that large proportions from each of the two DOL populations demonstrate very limited literacy skills — that is, on each of the three literacy scales 40 to 50 percent of the eligible JTPA applicants and ES/UI

participants demonstrate skills that fall within the ranges defined here as level 1 and level 2. Unless an attempt is made to upgrade the level of literacy skill of these individuals, their success in job training programs may be limited, thus denying them access to the job market. Moreover, for those individuals who do succeed in a job training program without a concomitant increase in their literacy skills, the question remains whether low demonstrated level of proficiency will enable them to avoid future employment difficulties that may arise from projected increases in skill requirements.

The most recent round of national employment projections (1990-2005) by the United States Bureau of Labor Statistics indicates that technicians and professional workers will be the most rapidly growing occupation groups, closely followed by managers/administrators. Jobs in the occupational classifications of laborers and operatives are projected to experience the slowest rates of growth — only one-eighth as high as those projected for professional and technical workers.

In the absence of sustained efforts to improve the literacy skills of DOL participants in levels 1 and 2, the success of DOL sponsored programs to improve employment or reemployment opportunities, wages, and occupational mobility will, in all likelihood, be severely limited. This is particularly the case for younger participants, those with limited educational experiences, and those whose employment history is limited to unskilled or semi-skilled occupations. Those DOL clients who are able to improve their literacy proficiency or who already demonstrate higher levels of proficiencies will be in a better position to gain access to the sets of jobs projected to grow more rapidly during the next decade or so. Longitudinal research studies could be undertaken to address this issue and to estimate the extent of the problem over time.

> *Literacy education and training practices must be broadened both within the traditional K-12 school program as well as in continuing education and training programs by focusing on literacy skills across the full range of printed or written materials associated with adult contexts. This is necessary because not only are schools producing future generations of workers but also because the school model for reading instruction is prevalent in many workplace and community education programs. The question is how should existing instructional practices be changed — both behind and beyond the school doors.*

Part of the problem appears to rest with the fact that some adult literacy programs aimed at developing comprehension skills are based on elementary school reading models that, for the most part, are restricted to the use of narrative texts. According to one report (Venezky, 1982) the primary emphasis of elementary and middle-level reading materials continues to be on the comprehension and enjoyment

of fine literature. While instruction should continue to stress the enjoyment and understanding of fiction and poetry, more systematic efforts must be made to develop the skills and strategies associated with success in using such genres as exposition and documents — that is, tables, charts, graphs, and forms.

Given the low literacy levels of the JTPA and ES/UI program participants and the large percentages of even high school graduates who demonstrate proficiencies in the lowest two levels, the assessment results suggest that primary emphasis on a single aspect of literacy may not lead to the acquisition of the complex information-processing skills and strategies needed to cope successfully with the broad array of tasks that adults face at work, at home, and in their communities.

In contrast, other adult literacy programs tend to focus on the acquisition of skills associated with discrete, "functional" tasks, such as filling out a job application form or using a bus schedule. Frequently, these isolated tasks are referred to as competencies that can be taught in isolation. This approach is also likely to have limited long-term utility for the individual learner. While literacy is not a single skill suited to all types of texts, neither is it an infinite number of skills each associated with a different text or document. Rather, as the analyses in Chapter 5 show, there appears to be an ordered set of information processing skills and strategies that are called into play to accomplish the range of tasks represented along each of the scales.

To the extent that the types of tasks used in this assessment are important for access and participation in our society, then the analyses and framework described in this report have important implications for the design of instructional materials. As one instance, a taxonomy of document structures has been generated from the array of tasks used in this and the earlier assessment as well as from a broad review of the technical literature to form the basis of an instructional system in this area.

Projected changes in the work place coupled with the fact that 40 to 50 percent of the JTPA and ES/UI populations score in the range defined by levels 1 and 2 suggest that there is a significant need for continuing education programs.

At this time and for the foreseeable future, there will be increasing pressure on adult education and training programs to provide relevant services for individuals demonstrating low-level literacy skills. The GED program is currently filling a portion of the need in relation to high school dropouts — some 55 percent of the JTPA and 45 percent of ES/UI participants report studying for the GED. Of these, only some 59 and 61 percent of JTPA and ES/UI participants, respectively, report receiving the certificate. But it is noteworthy that, on average, GED certificate holders attain similar literacy proficiencies as do their high school graduate counterparts. These figures seem to reflect a need for the introduction of alternative routes for those individuals who pursue but do not complete the GED. Moreover, the fact that around

half of the high school dropouts in the DOL populations report not studying for the GED calls into question whether programs in addition to the GED are needed to meet the current literacy needs of these populations.

The results of some cross tabulations of perceived skill in relation to most current job may help illuminate this issue. Of the JTPA eligible applicants scoring in level 1 on the prose scale, some 81 to 86 percent report that their reading, writing, and mathematics skills were adequate for success in their most current jobs. On the document scale, the corresponding percentages range from about 80 to 84, while on the quantitative scale the percentage range is approximately 76 to 87. The percentages of reported adequacy of skills increases to about 100 percent at higher levels on each of the three literacy scales. The picture is very similar for ES/UI program participants.

Nevertheless, on each of the scales roughly 90 percent of the individuals who score in level 1 report that improved literacy skills would assist them to obtain a better job. While the percentages decrease at successive levels of proficiency on each of the scales, it is worth noting that significant percentages of program participants at each of the higher levels also believe that continuing to improve their skills, particularly in mathematics, will be associated with better career opportunities. For example, on the prose scale, 64 percent of people achieving scores in the range of level 3, 46 percent in the range of level 4, and 22 percent in the range of level 5 indicate that improving their reading and writing skills will help them get a (better) job. With respect to mathematics, 81 percent in level 3, 72 percent in level 4, and 61 percent in level 5 report that improving their skills would improve their job opportunities. Thus, there appears to be a strong call for adult continuing education programs. The question is how to design programs to reach and hold individuals who both demonstrate and perceive the need for improved literacy skills.

> *To facilitate long-term solutions to the literacy problems of our adult population, steps must be taken to ensure that literacy and literacy practices come to be more universally valued by our citizens.*

It is suggested that the real costs of deficient adult literacy skills are not simply in lost productivity or unearned wages and marginal living conditions, but rather in the vicious, recurrent, cyclical nature of adult literacy problems as reflected in the fact that each year many students enter our public schools from homes in which they have not acquired the minimal competencies to succeed; many later become dropouts and failures.

There was ample evidence in the 1986 survey of young adult literacy skills — evidence that is underscored and reinforced in the current DOL assessment — that the availability of reading materials in the home while growing up is closely associated

with higher levels of demonstrated adult skills. This is not to say, of course, that simply providing books and other literacy materials to the home will result in some magical solution to the literacy problems of future adults. The findings of both assessments clearly indicate that, *independent* of other salient demographic and background variables, the reported practice of literacy skills (e.g., reading newspapers) is strongly predictive of higher adult literacy proficiencies.

Attempts have been made to link student achievement to home variables — as in NAEP, High School and Beyond, and the National Education Longitudinal Study. For example, a recent NAEP report noted evidence that students who reported higher parental interest in their schooling experiences demonstrated higher levels of achievement. But no large-scale assessment of the intergenerational effects of literacy has been undertaken, and such a study would seem to be an obvious next step in any serious attempt to resolve the literacy problems evidenced in our society.

• *Reflections*

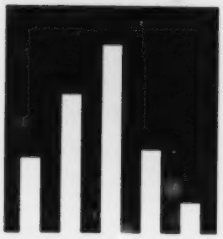
This report raises an important question for America's policymakers, educators, corporate leaders, parents, and students — What investments need to be made to raise America's human capital? The results point to the need to provide adequate literacy training as part of any publicly supported program aimed at improving the employment or reemployment opportunities, wages, and occupational mobility of its participants. In addition, the need for systematic study of key occupational families at various points in the career ladder from novice to expert has been noted as has been the need to improve recruitment and retention of adult learners. The results also point to the need to develop integrated information systems and the importance of seeking new approaches to instruction that meet the needs of those demonstrating low literacy levels.

But, in addition to these things, the current DOL assessment yields a rich database that ought to be explored further through secondary analyses that go beyond the scope of this report. Investigations ought to be made into the relationships among various labor market outcome variables and demonstrated skills in each of the three literacy domains. It would also be interesting to attempt to disentangle the effects of transient periods of low income from the more long-term effects associated with poverty.

In the final analysis, it is recognized that many of our poor, many of our minorities, and many of those with limited schooling endure distractions and disincentives to learning that prevent them from achieving higher literacy levels. Yet finding solutions aimed at improving current literacy levels is a necessary step to ensuring individual opportunity, to increasing productivity, and to strengthening the United States' competitiveness in a global economy.

APPENDIX A

BACKGROUND AND ACTIVITY QUESTIONNAIRE



LOCATION NUMBER: _____

PROGRAM (JTPA, ES, UI, OR BOTH ES & UI): _____

RESPONDENT NUMBER: _____

TIME INTERVIEW BEGAN: _____

BACKGROUND AND ACTIVITY QUESTIONNAIRE

The Department of Labor has asked us in this office to conduct a survey of people who, like you, are enrolled in a Department of Labor program. In fact, offices all across the country are interviewing people who are enrolled in the Job Training Partnership Act program (JTPA) or who are registering with the Employment Service or for Unemployment Insurance. Our purpose in doing this is to learn something about you and your background and about your reading and writing skills. The information we collect will be used by the Department of Labor and others to assist in planning future educational programs.

You were chosen to take part in this survey by a random selection process. We would very much like you to take part, but we also want you to know that your participation is completely voluntary. The survey will last approximately 80 minutes. All of your answers will be kept strictly confidential and will not be linked to your name.

Before we begin, do you have any questions about this study that I might answer?

Pause to give respondent a chance to ask questions.

First, I would like to ask you a few questions about yourself and when you were growing up.

1. In what country were you born?

1 USA
2 Other (specify country):_____
— Go to question 3

*If **USA**, ask questions 2 and 2a and then go to question 6:*

2. In what state or territory?

Record State or Territory:

_____

2a. In what county?

Record County: _____

*If **not born in USA** (50 states or D.C.), ask:*

3. How many years have you lived in the United States (50 states or D.C.)?

Record Number of Years: _____

4. Did you attend school before coming to the United States (50 states or D.C.)?

1 Yes
2 No — *Go to question 6*

*If "**Yes**," ask:*

5. What was the highest grade in school you completed before coming to the United States (50 states or D.C.)? (*Do not read list.*)

1 Primary (Grades K-3)
2 Elementary (Grades 4-8)
3 Secondary (Grades 9-12)
4 Vocational (Post-Secondary)
5 College/University

ASK EVERYONE

6. When you were growing up, what language or languages were *usually* spoken in your home? (*Circle all that apply.*)

1 English — *Go to question 11*
2 Spanish
3 Other (specify) _____

*If **"Spanish or other,"** ask:*

7. Who in the household usually spoke in the language (languages) other than English? (*Do not read list. Circle all that apply.*)

1 Father (stepfather or male guardian)
2 Mother (stepmother or female guardian)
3 Brothers or sisters
4 Relatives (grandparents, aunts, uncles, etc.)
5 Non-relatives
6 Respondent

8. What language or languages do you speak most often now? *(Circle all that apply.)*

1 English
2 Spanish
3 Other (specify) _____

***Interviewer**: If English only in question 8, go to question 11. Questions 9 and 10 refer to respondent's single or main non-English language. If only one non-English language in question 8, refer to that language. If more than one non-English language, ask respondent which is his or her main non-English language. Record single or main non-English language:* _____

*If **any non-English** language mentioned, ask:*

☞ HAND RESPONDENT CARD A.

9. How often do you currently speak that language?

1 Daily
2 Once or twice a week
3 Once or twice a month
4 Once or twice a year
5 Never

Go to question 11

*If language is used **daily or weekly**, ask:*

☞ HAND RESPONDENT CARD B.

10. What language do you use in each of the following situations?

	Always English	More English than Other	English and Other Equally	More Other than English	Always Other
a. At home	1	2	3	4	5
b. At work	1	2	3	4	5
c. While shopping in your neighborhood	1	2	3	4	5
d. When visiting friends or relatives	1	2	3	4	5

ASK EVERYONE

Now I would like to ask you some questions about your education.

11. Are you currently enrolled in school or taking any classes?

1 Yes
2 No — *Go to question 15*

*If "**Yes**," ask:*

12. Are you currently taking a GED class?

1 Yes
2 No

13. Are you considered to be a full-time or part-time student?

1 Full-time student
2 Part-time student

***Interviewer**: If respondent has a question about the definition of full time or part time, tell him or her to use the school's definition.*

14. What diplomas, certificates, degrees, or licenses do you expect to earn in school?

1 High school diploma or equivalency
2 Vocational, trade, or business
3 Two years of college (associate's degree)
4 Four- or five-year college degree (B.S., B.A.)
5 Master's, Ph.D., M.D., or other advanced degree
6 Other (specify): _____
7 None

Comments: _____

ASK EVERYONE

15. What was the last grade of public or private school you have completed? (*Do not read list.*)

1 Less than high school (0-8 years)
2 Some high school (9-12 but did not complete 12th grade)
3 High school graduate (12 years; accelerated or early graduate program)
4 Attended a vocational, trade, or business school after high school
5 College: less than two years
6 College: associate's degree (A.A.)
7 College: two years or more, no degree
8 College graduate (B.S. or B.A.)
9 Postgraduate/no degree
10 Postgraduate/degree (M.S., M.A., Ph.D., M.D., etc.)
11 Don't know

16. Did you receive a high school diploma?

1 Yes
2 No — *Go to question 19*

*If "**Yes**," ask questions 17 and 18:*

17. When did you receive the diploma?

Record year: _____

18. How would you classify the primary emphasis of your high school courses? (*Read list.*)

1 General only
2 Vocational, technical, or trade
3 College preparatory

After question 18, go to question 23.

19. What were the main reasons you stopped your schooling when you did?

_____

_____

_____

_____

20. Have you ever participated in an Adult Basic Education program?

1 Yes
2 No

*Check question 12. If answered "**Yes**," go to question 23. If answered "**No**," ask:*

21. Have you ever studied for a GED or high school equivalency certificate?

1 Yes
2 No — *Go to question 23*

*If "**Yes**," ask:*

22. Did you receive that certificate?

1 Yes
2 No — *Go to question 23*

22a. If "yes," when did you receive it?

Record year: _____

ASK EVERYONE

23. Have you ever taken part in any of the following types of programs since leaving high school? (*Read list. Circle all that apply.*)

1 Vocational, technical, or secretarial program given by a public or private institution
2 Apprenticeship program
3 Employer-provided, work-site training program
4 Vocational, technical, or secretarial program provided by the military

*For **each item circled**, ask:*

24. How long were you in that program? (*Specify number of weeks.*)

1 _____ 2 _____ 3 _____ 4 _____

25. Did you serve in the military?

1 Yes
2 No — *Go to question 27*

*If "**Yes**," ask:*

26. In what branch of the armed forces did you serve?

Record branch: _____

26a. For how long did you serve?

Record years: _____

ASK EVERYONE

Now, I'd like to ask you some questions about your family when you were growing up.

27. What was the highest grade your mother (stepmother or female guardian) completed in school? (*Do not read categories.*)

1 Less than high school (0 8 years)
2 Some high school (9-12 but did not complete 12th grade)
3 High school graduate (12 years; accelerated or early graduate program)
4 Attended a vocational, trade, or business school after high school
5 College: less than two years
6 College: associate's degree (A.A.)
7 College: two years or more, no degree
8 College graduate (B.S. or B.A.)
9 Postgraduate/no degree
10 Postgraduate/degree (M.S., M.A., Ph.D., M.D., etc.)
11 Don't know

28. What was the highest grade your father (stepfather or male guardian) completed in school? (*Do not read categories.*)

1 Less than high school (0-8 years)
2 Some high school (9-12 but did not complete 12th grade)
3 High school graduate (12 years; accelerated or early graduate program)
4 Attended a vocational, trade, or business school after high school
5 College: less than two years
6 College: associate's degree (A.A.)
7 College: two years or more, no degree
8 College graduate (B.S. or B.A.)
9 Postgraduate/no degree
10 Postgraduate/degree (M.S., M.A., Ph.D., M.D., etc.)
11 Don't know

29. Which of the following materials (written in English) did you have in your home while you were in high school? (*Read list.*)

***Interviewer**: If respondent did not attend high school, ask him or her to answer according to the age when he or she would have been in high school, ages 15-18.*

	Yes	No	Don't know
A daily or weekly newspaper	1	2	X
Magazines	1	2	X
More than 25 books in the home	1	2	X
An encyclopedia	1	2	X
A dictionary	1	2	X
A personal computer (that is, something with a keyboard and a screen)	1	2	X

Now, I'd like to ask you some questions about your everyday life.

30. Are you currently registered to vote?

1 Yes — *Go to question 32*
2 No

*If **not** registered, ask:*

31. Are you eligible to register to vote in the United States?

1 Yes
2 No

*ASK **EVERYONE***

32. Have you ever voted in a public election in the United States?

1 Yes
2 No

Interviewer, say to respondent: "Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested."

33. Would you say you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all?

1 Most of the time
2 Some of the time
3 Only now and then
4 Hardly at all

34. How many hours do you usually spend watching television each day?

1 None
2 1 hour or less
3 2 hours
4 3 hours
5 4 hours
6 5 hours
7 6 or more hours

Now, I'd like to ask you some questions about your main occupation during the past 12 months.

35. Did you do any work for pay or profit last week (including pay from self-employment)?

1 Yes
2 No — *Go to question 38*

*If "**Yes**," ask questions 36 and 37:*

36. How many hours did you work last week?

Hours: _____

37. What was your hourly wage (including tips and commissions) *before* any deductions?

Hourly wage: _____

Interviewer: *For questions 37 and 44, if the respondent can not provide an hourly wage, then ask for a weekly, monthly, or yearly wage and indicate which wage it is.*

After question 37, go to question 40.

38. What were you doing last week (what was your status)?

1 Unemployed or laid off
2 In school or training
3 Keeping house
4 Other (specify) _____

Go to question 40

*If **unemployed or laid off**, ask:*

39. Were you looking for work?

1 Yes
2 No

*ASK **EVERYONE***

40. During the past 12 months how many weeks did you work for pay or wages (including weeks of paid vacation)?

Record weeks: _____

*If **52 weeks** for question 40, ask question 41 and then go to question 43:*

41. How many consecutive years have you been working in that job, that is, either for that employer or in that line of work?

Record years: _____

*If **less than 52 weeks** for question 40, ask:*

42. Of the weeks you were not employed, what were you doing?

1 Looking for work
2 In school or training
3 Keeping house
4 Other (specify) _____

*If **0 weeks** for question 40, go to question 45.*
*If **any other number of weeks** for question 40, ask:*

43. On average, how many hours per week did you work?

Record hours: _____

44. What was your hourly wage (including tips and commissions) before any deductions?

Record hourly wage: _____

ASK EVERYONE

45. Did you work more than 20 hours a week while you were going to high school?

1 Yes, year round
2 Yes, summers only
3 Yes, during the school year only
4 No
5 Did not attend high school

Go to question 47

*If "**Yes**" on question 45, ask:*

46. For how long did you hold that job?

Record length of time: _____

ASK EVERYONE

47. How old were you when you held your first full-time job after leaving school?

1 Record age: _____
2 Never worked full-time — *Go to question 57*

*If age recorded for **question 47**, ask:*

48. What kind of work did you do in your first full-time job, that is, what was your main job called?

Record occupation: _____

49. In your most recent occupation, what kind of work did you do; that is, what was your main job called?

Record occupation: _____

49a. How many years did you work in this occupation?

Record years: _____

☞ **HAND RESPONDENT CARD C.**

50. How often did you read and/or use information from each of the following on your job?

	Every day	A few times a week	Once a week	Less than once a week	Never
a. Reports or journal articles	1	2	3	4	5
b. Forms	1	2	3	4	5
c. Letters	1	2	3	4	5
d. Diagrams or schematics	1	2	3	4	5

51. How often did you have to write up or fill out each of the following for your job? (*Use Card C.*)

	Every day	A few times a week	Once a week	Less than once a week	Never
a. Memos, business letters	1	2	3	4	5
b. Reports	1	2	3	4	5
c. Forms	1	2	3	4	5
d. Bills, invoices	1	2	3	4	5

52. How often did you have to use mathematics for your job—every day, a few times a week, once a week, less than once a week, never?

1 Every day
2 A few times a week
3 Once a week
4 Less than once a week
5 Never

53. Did you feel your reading skills were good enough for your job?

1 Yes
2 No
3 Don't know

54. Did you feel your writing skills were good enough for your job?

1 Yes
2 No
3 Don't know

55. Did you feel your mathematics skills were good enough for your job?

1 Yes
2 No
3 Don't know

☞ HAND RESPONDENT CARD D.

56. Considering all aspects of your most recent job, rate each of the following skills and abilities on a scale of one to five according to their importance in performing your job effectively.

	Not important at all	Somewhat important	Important	Pretty important	Very important
a. Reading	1	2	3	4	5
b. Writing	1	2	3	4	5
c. Working with numbers (mathematics)	1	2	3	4	5
d. Talking clearly to others	1	2	3	4	5
e. Listening well to others	1	2	3	4	5
f. Solving problems you encounter on the job	1	2	3	4	5
g. Coming up with new ideas for your work	1	2	3	4	5
h. Working well with others	1	2	3	4	5
i. Planning the future of your career	1	2	3	4	5
j. Organizing your activities on the job	1	2	3	4	5
k. Leading others on the job	1	2	3	4	5

ASK EVERYONE

57. Do you think you could get a (better) job if you received additional training in reading or writing English?

1 Yes
2 No

58. Do you think you could get a (better) job if you received additional training in mathematics?

1 Yes
2 No

☞ HAND RESPONDENT CARD E.

59. How frequently do family members or friends help you with. . . ? (*Read activities.*)

	Daily	Weekly	Every month	Once or twice a year	Never
a. Filling out forms	1	2	3	4	5
b. Reading/explaining newspaper articles or other written information	1	2	3	4	5
c. Dealing with government agencies, public companies, business, medical personnel, etc.	1	2	3	4	5
d. Writing notes and letters	1	2	3	4	5

☞ HAND RESPONDENT CARD F.

60. Do you currently have any of these conditions? (*Circle all that apply.*)

1 Learning disability
2 Eye trouble (not corrected by glasses)
3 Hearing problem/deafness
4 Speech disability
5 Physical disability
6 Long-term illness (6 months or more)
7 No illness or disability

I would now like to ask you about those in your current household.

61. What is your current marital status?

1 Single and never married
2 Married (living with spouse)
3 Married (spouse temporarily living elsewhere)
4 Legally separated or divorced
5 Widowed

62. Who currently lives in your household with you? (*Do not read list. Circle all that apply.*)

1 Father (stepfather or male guardian)
2 Mother (stepmother or female guardian)
3 Brother(s) or sister(s)
4 Wife/husband
5 Children (other than respondent's brother/sister)
6 Other adult relatives (grandparents, aunts, uncles, etc.)
7 Non-relatives
8 Live alone — *Go to question 64*

Interviewer: *Probe by asking,* "With whom are you currently living?"

If circled **3 or 5**, *ask question 62a:*

62a. How many brothers or sisters or children are under the age of 5?

Record number: _____

63. How many people live in your household including yourself?

Number: _____

64. What are the city, state, and zip code of your current address?

City or town: _____

State and zip code: _____

64a. How long have your lived at this address?

Record years: _____

65. How many people in your household are employed or work for pay or wages. . .

Full-time? _____

Part-time? _____

☞ HAND RESPONDENT CARD G.

66. What is your estimate of your *personal* income from all sources for the past 12 months?

1 Under $5,000
2 $ 5,000 - $ 9,999
3 $10,000 - $14,999
4 $15,000 - $19,999
5 $20,000 - $29,999
6 $30,000 - $39,999
7 $40,000 - $49,999
8 $50,000 and over
9 Refused
10 Don't know
11 No personal income

67. What is your estimate of your total *household* income from all sources for the past 12 months? *(Use Card G.)*

1 Under $5,000
2 $ 5,000 - $ 9,999
3 $10,000 - $14,999
4 $15,000 - $19,999
5 $20,000 - $29,999
6 $30,000 - $39,999
7 $40,000 - $49,999
8 $50,000 and over
9 Refused
10 Don't know

68. Did you or anyone in your household receive any of the following during the past 12 months? (*Read list. Circle all that apply.*)

1 AFDC (aid to families with dependent children)
2 General assistance, home relief
3 SSI (supplemental security income)
4 Food stamps
5 Unemployment compensation
6 Other (public/private source; for example church, not family) _____

Now, I'd like to talk to you about what you read in English.

69. How often do you read a newspaper in English — every day, a few times a week, once a week, less than once a week, or never?

1 Every day
2 A few times a week
3 Once a week
4 Less than once a week
5 Never — *Go to question 72*

If ***ever read a newspaper****, ask:*

70. Is reading the newspaper part of your job or school work?

1 Yes
2 No

☞ HAND RESPONDENT CARD H.

71. This is a list of different parts of newspapers. Would you please tell me which parts you generally read when looking at a newspaper? (*Circle all that apply.*)

1 National/international news
2 State/local news
3 Sports
4 Women's/society pages
5 Editorial page
6 Financial news or stock listings
7 Comics
8 Classified ads
9 Other advertisements
10 TV listings
11 Movie or concert listings
12 Book, movie, or art reviews
13 Horoscope
14 Other: _____

_____

Probe: Do you read any *other* parts of the newspaper? (*Record above, under "14 other."*)

ASK EVERYONE

☞ HAND RESPONDENT CARD I.

72. Which of the groups on this card best describes you? (*If respondent refuses to answer, please record from observation the respondent's race/ethnicity.*)

1 White
2 Black
3 American Indian, Alaskan Native
4 Asian, Pacific Islander
5 Other (specify): _____

73. Are you of Spanish or Hispanic origin or descent?

1 Yes
2 No — *Go to question 75*

If Hispanic, ask:

☞ HAND RESPONDENT CARD J.

74. Which of these descriptions best describes your Hispanic origin?

1 Mexican/Mexican-American, Chicano
2 Puerto Rican
3 Cuban
4 Central/South American
5 Other Spanish/Hispanic

ASK EVERYONE

75. When were you born?

Record month: _____ Year: _____

76. What is your social security number?

Interviewer: *Say to respondent:* "Providing your social security number is voluntary. Please note, however, that it will be deleted from the permanent record."

Record number: _____

If respondent is part of the JTPA or ES population, ask:

77. What benefit or benefits do you expect to gain from _____? (*Fill in JTPA or ES.*)

_____

_____

☞ INTERVIEWER: PLEASE NOTE.

78. Sex: ☐ Male ☐ Female

Interviewer's name: _____

I testify that the data have not been falsified, that the interview was completed according to specifications, and that I agree to keep all information gathered in confidence.

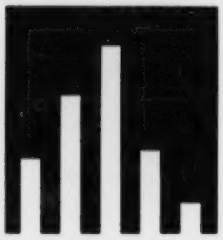
Time interview ended: _____ ☐ a.m. ☐ p.m.

Interviewer ID number: _____

Date: _____

APPENDIX B

SAMPLING, WEIGHTING, AND SAMPLING ERROR ESTIMATION



This appendix provides an overview of the procedures employed to obtain the samples of individuals for the assessments of literacy in the JTPA and the ES/UI populations. Also discussed are the weighting procedures and variance estimation procedures for those samples.

• *Sample Design*

The assessments of literacy in the JTPA and the ES/UI populations are based on separate and independent sample surveys. The design of each survey is that of stratified, multi-stage cluster sampling, with selection at certain stages proportional to estimated size.

Primary Frames

For the JTPA population, a frame was constructed in which states within seven geographic regions were listed, with individual sizes measured according to the number of 1987 JTPA participants. The measures of size were accumulated, yielding a total of 1,034,974. Each region constituted a stratum, with the exception of the two largest regions, each of which was broken into two strata for purposes of primary selection. Thus, the frame consisted of nine primary strata.

The ES/UI frame was constructed in the same manner as for JTPA, except that the measure of size was the estimated 1987 total of ES and UI participants for each state. The cumulative total size was 18,937,091.

First-stage Selection

Two states were selected with probability proportional to estimated size, with replacement, from each of the nine strata in the JTPA frame. Since a state could be

drawn more than once, sampling with replacement resulted in the selection of 14 distinct states (primary selection units):

Arizona	Missouri
Arkansas	New York*
Florida	North Carolina*
Indiana*	Pennsylvania
Kentucky	Utah
Louisiana	Virginia
Minnesota*	Washington

*These four states were each selected twice into the JTPA sample.

Sampling with replacement with probability proportional to size from the ES/UI frame resulted in the selection of 16 distinct states:

Alabama	New York
California*	North Carolina
Florida	Ohio*
Illinois	Oklahoma
Indiana	Tennessee
Kansas	Texas
Maryland	Utah
Massachusetts	West Virginia

*Each of these two states was selected twice into the ES/UI sample.

Second-stage Selection

For each of the 18 state selections (including the four states selected twice) from the JTPA population, a second-stage frame of service delivery areas (SDAs) was constructed with cumulative 1987 sizes. Then, a sample of four SDAs per state was selected with replacement with probability proportional to estimated size. Thus, a state that was hit twice at the first stage provided up to eight SDAs at the second stage.

The second-stage selection unit for the ES/UI population was the local office. As with JTPA, four local offices per state were selected with replacement with probability proportional to estimated size for each of the first-stage hits.

Third-stage Selection for JTPA

Many of the service delivery areas (SDAs) for the JTPA population consist of more than one geographic location where participants are enrolled. Thus, for each second-stage selection with more than one office, it was necessary to select a unique third-stage locale with probability proportional to size. Although there was some duplication in selection at the second stage, the third-stage units were sufficiently

small so that no duplicate hits occurred. Since all of the local offices of ES/UI selected at the second stage consisted of unique locations, a third stage was not needed for that population.

The selections made at the second stage for ES/UI did not result in any duplicates. Thus, before the final-stage selection of actual participants, the samples for each survey, JTPA and ES/UI, consisted of 72 (18 x 4) separate geographic locations where assessments would take place. For accounting purposes and to facilitate the estimation of variances, each location was assigned a unique three-digit sampling identification number (SID), where the first digit indicated the first-stage stratum (1 through 9), the second digit the first or second selection from that stratum, and the third digit the second-stage selection (1 through 4).

Selection of Program Participants

The original plan called for 56 assessments to be performed at each of the 72 locations for a total of 4,032 completed cases in each survey. Unfortunately, there were no lists of potential participants from which to select via probability sampling. As a result, the persons to be assessed had to be chosen and persuaded to cooperate as they arrived at the local offices. The days and hours at which arrivals would be asked to participate were chosen at random from the periods of operation of the local offices. Due to the logistical infeasibility of the kind of follow-up procedures used in conventional surveys of households, program participants who refused were replaced with the next arrival. Including those refusing to participate, a total of 5,079 JTPA registrants were invited to participate in the assessment, of whom 2,501 or 49 percent agreed to participate. A total of 10,479 ES/UI registrants were invited to participate, of whom 3,277 or 31 percent did participate. To provide a check on the representativeness of the final sample of respondents of the registrant population as a whole, a transmittal form requesting various demographic information was filled out for all registrants entering the local office on the days the office was assigned to select respondents for assessment. A comparison of the demographic composition of all such registrants with that of the respondents appears in the section Calculation of Case Weights, in this appendix.

• *BIB Spiralling for Item Administration*

In examining both the nature and status of literacy among JTPA and ES/UI client groups, this study sought to apply the concept of literacy used by NAEP in its assessment of young adults. This required that we employ an assessment design that would ensure broad and representative coverage of the literacy domains identified by NAEP. Since only some 60 minutes of response time were allocated to the measurement of literacy skills, it was necessary to use some form of item sampling procedure to ensure adequate domain coverage. A powerful variant of standard matrix

sampling known as balanced incomplete block (BIB) spiralling was used. As with standard matrix sampling designs, no respondent is administered all of the tasks in the assessment pool. Instead, each individual responds to one or more blocks of exercises. However, unlike standard matrix sampling in which tasks or exercises are divided into discrete booklets, in BIB spiralling the exercises are placed into blocks that are linked in ways that permit the estimation of relationships among all exercises in the assessment pool. For the DOL assessment, there was a set of core tasks plus 13 blocks of exercises, with each block requiring about 17 minutes of administration time. As a result, each respondent was administered one of 26 assessment booklets containing the core plus three blocks of literacy tasks. The DOL assessment significantly broadens the exercise pool over the NAEP literacy assessment by expanding the number of blocks of exercises from seven to 13. The assignment of blocks to booklets was accomplished using the BIB spiralling design shown in Table B.1, with each booklet also containing the set of core tasks.

In the BIB part of this design, the assignment of blocks of tasks to booklets had several important characteristics.

1. Each block appeared with the same frequency — in six of the 26 booklets.
2. Positional effects were controlled for at the block level since each block appeared in each of the three possible positions.
3. Each block was paired with every other block.

The spiralling part of the design cycled the booklets for administration so that each booklet was completed by a random sample of respondents from each of the

Table B.1 **DOL Balanced Incomplete Block Booklet Design**

Booklet	Blocks			Booklet	Blocks		
1	1	2	5	14	1	3	8
2	2	3	6	15	2	4	9
3	3	4	7	16	3	5	10
4	4	5	8	17	4	6	11
5	5	6	9	18	5	7	12
6	6	7	10	19	6	8	13
7	7	8	11	20	7	9	1
8	8	9	12	21	8	10	2
9	9	10	13	22	9	11	3
10	10	11	1	23	10	12	4
11	11	12	2	24	11	13	5
12	12	13	3	25	12	1	6
13	13	1	4	26	13	2	7

JTPA and ES/UI populations. This resulted in approximately equal numbers of JTPA and ES/UI participants responding to each booklet and each block.

It should be noted that one outcome of BIB spiralling is that every task was taken by a representative subsample of the total sample of JTPA and ES/UI respondents (on average 6/26 of the total sample). This ensures that representative estimates of performance of the population as a whole can be derived for each task. One important benefit of this methodology is that every possible pair of tasks was taken by a representative subsample of the total sample from each population so that correlations between pairs of tasks can be estimated.

An important feature of this type of design is that it is most efficient for estimating the literacy levels of major groups and subgroups of interest. One consequence, however, is that it is less useful in providing reliable estimates of the literacy levels of individuals. Phase II of the DOL literacy assessment (not discussed in this report) is designed to develop a literacy test that will provide appropriate information about the literacy proficiencies of individuals.

• Calculation of Case Weights

For the selection of states and SDAs (Stages 1 and 2) in the JTPA survey and the selection of states (Stage 1) in the ES/UI survey, the probabilities of selection at each stage were calculated from the 1987 size information referred to in the discussion of frame construction. The selection of local offices (Stage 3 in JTPA and Stage 2 in ES/UI) was made from updated frames with more recent information on numbers of participants. The *overall probability* of selection of the local office is thus obtained by multiplying the probabilities of selection at all stages, starting with state selection and culminating with selection of the office. We refer to the reciprocal of this overall probability as the *base weight* associated with assessment at a particular geographic location and denote it by WB_{SID}, where the subscript, SID, is the sampling identification number for the geographic location.

For individual case weights, it is necessary to multiply the base weights for each location by the reciprocal of an estimated probability of selection and assessment within that location. Personnel at each local office were instructed to keep accurate lists of all registrants on the days that were randomly chosen for assessment. The total counts tallied from the lists for the selected days were inflated to represent a full year of operation. Thus, the last-stage selection probability for a given location was estimated by dividing the number of completed cases by the estimated arrivals for the year. Symbolically, the last-stage selection probability (i.e., the probability of a respondent being chosen at a given location during a given year) is $[(n_{SID}/N_{SID})*(d_{SID}/D_{SID})]$, where n_{SID} is the number of completed cases, N_{SID} is the total number of registrants on the d_{SID} days chosen for assessment, and D_{SID} is the number of days in a full year of operations. Multiplying the base weight by the

reciprocal of the last-stage selection probability resulted in the *case weight*, W_{SID}. The case weight is constant for all assessments at a given local office and, through the factor N_{SID}/n_{SID}, automatically includes an adjustment for varying nonresponse among local offices since the number of individuals refusing to participate is included in N_{SID}.

The case weights allow the estimation of various characteristics of the population of participants in the JTPA and ES/UI programs. For example, the sum of the weights of all JTPA respondents provides an estimate of the total number of participants in the JTPA program during the year of the survey; the sum of the weights of all JTPA respondents who share a common characteristic (such as answering a particular question correctly) provides an estimate of the total number of JTPA participants with that characteristic; and the ratio of the second sum to the first estimates the proportion in the population with the characteristic. As another example, the estimated population mean proficiency for one of the literacy scales is the weighted mean of the proficiency estimates for the respondents.

Since a considerable proportion of participants who were invited to participate in the survey refused, it is important to ascertain how representative the final sample of respondents is of the full population of participants. Each office participating in the survey was asked to provide various demographic information for all registrants on the days randomly selected for assessment. Table B.2 shows the comparison of the weighted sample of respondents with the weighted sample of registrants for gender, race/ethnicity, education, and age. The relative frequencies for the respondents were calculated using the case weights, while the relative frequencies for the registrants were calculated using the weights $WB_{SID} * D_{SID}/d_{SID}$, which are the reciprocals of the probability of selecting all registrants from the local office on the days designated for assessment. Also included in Table B.2 are the standard errors of the estimated relative frequencies for the respondents.

For the most part, the differences in the weighted relative frequencies for the respondents and for all registrants are within the bounds to be expected, given sampling variability. There are, however, two exceptions. For both the JTPA and the ES/UI samples, there are relatively too few responding males. Of perhaps more importance for the measurement of literacy is that the distribution of education levels for the respondents is somewhat different from that of the registrants as a whole. For JTPA, there are relatively too many respondents with some high school education and relatively too few who graduated from high school; for ES/UI, there are relatively too few respondents with less than high school education and relatively too many who graduated from college. It should be noted, however, that the education level is unknown for a considerable proportion of the ES/UI registrants and for a nonnegligible proportion of the JTPA registrants. The proportions of registrants whose educational levels are unknown are more than sufficient to account for any discrepancy in education levels between the registrants and the respondents.

Consequently, the population estimated by the respondents is likely to be close to the full population of participants, at least as far as literacy goes. Nevertheless, since

the proportion of nonrespondents is so large, care must be exercised in estimating quantities whose values may be associated with noncooperation. (Consideration was given to applying an adjustment, called post-stratification, to the case weights of the respondents so as to make the weights' relative frequencies for demographic subgroups defined by gender and ethnicity match those of the registrants. However, the weighted relative frequencies of the registrants are also subject to unknown degrees of variance and bias. In such a situation, post-stratification can potentially increase the variance of, and add bias to, survey estimates. Consequently, the case weights were not post-stratified.)

Table B.2 **Comparisons of Weighted Relative Frequencies (%) by Demographic Subgroup of Assessment Respondents with Corresponding Weighted Frequencies of All Registrants on Sampling Days**

	JTPA			ES/UI		
	Respondents	Registrants	Difference	Respondents	Registrants	Difference
GENDER						
Male	41.5 (1.7)***	46.6	-5.1	56.3 (2.0)	60.6	-4.3
Female	58.5 (1.7)	53.4	5.1	43.7 (2.0)	39.4	4.3
RACE/ETHNICITY						
White	69.2 (3.8)	73.2	-4.0	62.8 (6.3)	70.9	-8.1
Black	20.9 (3.4)	20.8	-0.1	11.6 (1.8)	13.8	-2.2
Hispanic	5.9 (1.4)	3.3	2.6	20.2 (5.1)	13.3	6.9
Other	4.0 (1.0)	2.7	1.3	5.4 (0.6)	2.0	3.4
EDUCATION						
<High School	6.9 (1.0)	6.0	0.9	3.0 (0.6)	5.1	-2.1
Some High Sch.	33.4 (2.4)	27.6	5.8	18.3 (4.6)	15.6	2.7
High Sch. Grad.	53.9 (2.4)	59.8	-5.9	59.5 (2.0)	59.8	-0.3
College Grad.	5.6 (1.6)	4.7	0.9	19.0 (3.2)	10.0	9.0
Unknown	0.2 (0.2)	2.0	-1.8	0.2 (0.1)	9.4	-9.2
AGE						
16 to 20	17.0 (2.7)	17.8	-0.8	9.8 (1.7)	9.5	0.3
21 to 25	19.7 (1.7)	19.8	-0.1	18.2 (2.6)	18.6	-0.4
26 to 31	21.5 (1.7)	20.7	0.8	22.0 (0.9)	21.8	0.2
32 to 45	31.3 (3.2)	29.7	1.6	32.5 (1.6)	32.6	-0.1
46 or more	10.6 (1.8)	11.3	-0.7	17.6 (2.1)	17.4	0.2

* respondents weighted by case weight W_{SID}
** registrants weighted by $WB_{SID} * D_{SID}/d_{SID}$
*** standard errors in parentheses

• *Estimating Sampling Variability (Jackknifing)*

A major source of uncertainty in the estimation of the value in the population of a variable of interest exists because information about the variable is obtained on only a sample from the population. To reflect this fact, it is important to attach to any statistic (e.g., a mean) an estimate of the sampling variability to be expected for that statistic. Estimates of sampling variability provide information about how much the value of a given statistic would be likely to change if the statistic had been based on another equivalent sample of individuals drawn in exactly the same manner as the achieved sample. Consequently, the estimation of the sampling variability of any statistic must take into account the sample design.

The JTPA and ES/UI samples were obtained via a stratified multi-stage probability sampling design. The resulting samples have different statistical characteristics than those of a simple random sample. In particular, because of the effects of cluster selection (participants within offices, offices within states), observations made on different respondents cannot be assumed to be independent of each other (and are, in fact, generally positively correlated). Treatment of the data as a simple random sample, with disregard for the special characteristics of the sample design, will produce underestimates of the true sampling variability.

A procedure known as jackknifing[1] is suitable for estimating sampling errors from such a complex design. This procedure has a number of properties that make it particularly suited to the analysis of the DOL data.

- It provides unbiased estimates of the sampling error arising from the complex sample selection procedure for linear estimates, such as simple totals and means, and does so approximately for more complex estimates.
- It reflects the component of sampling error introduced by the use of weighting factors that are dependent on the sample data actually obtained.
- It can be used for estimating sampling errors of regression coefficients and other statistics in addition to tabulation estimates such as totals and means.

For this study, the method of applying the jackknife procedure involves first defining pairs of first-stage units in the sample. States selected once into the sample were considered first-stage units and were paired within region as shown in Table B.3. The first-stage units for states selected twice into the sample were the eight SDAs selected within each such state for the JTPA sample and the local ES/UI offices for the ES/UI sample. These were paired by median income level (which is highly related to mean literacy level), resulting in four pairs for each double-hit state. As a result, 21 pairs were defined for JTPA and 15 pairs for ES/UI.

[1] See, for example, Johnson, E. G. (1989), Considerations and techniques for the analysis of NAEP data, Journal of Educational Statistics, 14, 303-334; and the references cited there.

The component of the sampling variability attributable to a pair is estimated as the squared difference between the value of the statistic, t, for the complete sample and a pseudoreplicate formed by recomputing the statistic on a specially constructed pseudo-dataset. This pseudo-dataset for the i^{th} pair is created from the original dataset by randomly designating the members of the pair as first and second, eliminating the data from the first member of the pair, and replacing the lost information with that from the second (so that the second unit is included twice) with a copy of the remaining unit or units in the pair. The statistic of interest, t, is recomputed on the i^{th} pseudo-dataset, producing the pseudoreplicate estimate t_i.

The component of sampling variability attributable to the i^{th} pair of first-stage units is $(t_i - t)^2$. This component not only reflects between-first-stage-unit variability but also within-first-stage-unit variability. The estimated sample variance of the statistic t is the sum $Var_{JK}(t) = \sum_{i=1}^{M} (t_i - t)^2$, where M is the number of first-stage pairs (equal to 21 for JTPA and 15 for ES/UI).

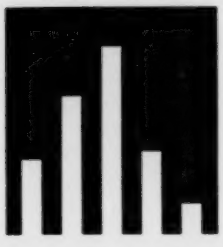
Table B.3 First-Stage Unit Pairing for Jackknife Variance Estimation

JTPA	ES/UI
single-hit state pairings*	**single-hit state pairings***
PA with VA	MA with NY
FL with KY	WV with MD
LA with AR	FL with AL
MO with UT	TN with NC
WA with AZ	IN with IL
	TX with OK
	KS with UT
double-hit states**	**double-hit states****
NY – 4 SDA pairs	OH – 4 SDA pairs
NC – 4 SDA pairs	CA – 4 SDA pairs
IN – 4 SDA pairs	
MN – 4 SDA pairs	

* states selected once at the first stage
** states selected twice at the first stage

APPENDIX C

SCALING AND SCORING PROCEDURES



• Overview

The results from the DOL literacy survey are reported on the same scales as the NAEP 1985 young adult literacy scales. With scaling methods, the performance of a sample of examinees can be summarized on a single scale or series of subscales even when different respondents have been administered different items. This section describes the models and procedures that were used for the analysis.

• Introduction

The DOL literacy survey gathered data on the proficiencies of 5,778 sampled respondents by means of 180 cognitive exercises (items). To reduce respondent burden, each assessed respondent was administered only a fraction of the pool of items, using a variant of matrix sampling. In addition to the DOL sample, several other samples received identical booklets under a similar mode of administration. They included 1,804 examinees from the state of Mississippi and 1,993 from Oregon.

The most conventional method of summarizing examinee responses, proportion of correct responses, is not suited for examinees who receive different sets of items. Moreover, item-by-item proportion correct reporting ignores overarching similarities of subgroup comparisons that are common across items. Finally, using average percent correct to estimate means of proficiencies of examinees within subpopulations does not provide any other information about the distribution of skills among examinees in the subpopulation.

These limitations of conventional scoring methods can be overcome by the use of item response theory (IRT) scaling. When several items require similar skills, the response patterns should have some regularity. Such regularity can be used to characterize both examinees and items in terms of a common standard scale, even when all examinees do not take identical sets of items. Then, the comparisons of

items and examinees can be made in reference to a scale instead of percent correct. Furthermore, distributions of groups of examinees can be compared.

The scaling was carried out separately for each of four domains of literacy established in the 1986 NAEP young adult literacy (YAL) assessment. The four subscales were NAEP reading proficiency, prose literacy, document literacy, and quantitative literacy.

• The Scaling Model

The scaling model used for the DOL assessment is the three-parameter logistic (3PL) model from item response theory (Lord, 1980). It is a mathematical model for the probability that a particular person will respond correctly to a particular item from a single domain of items. This probability is given as a function of a parameter θ characterizing the proficiency of that person, and three parameters characterizing the properties of that item. The specific IRT model employed in the DOL assessment is the following three-parameter logistic model:

$$P(X_{ij}=1|\theta_i,a_j,b_j,c_j)=c_j+\frac{(1-c_j)}{1+\exp[-1.7a_j(\theta_i-b_j)]}=P_j(\theta_i)$$

where

x_{ij} is the response of person i to item j, 1 if correct and 0 if incorrect;

θ_i is the (unobservable) proficiency of person i (note that a person with higher proficiency has a greater probability of making correct responses);

a_j is the slope parameter of item j, characterizing its sensitivity to proficiency;

b_j is its threshold parameter, characterizing its difficulty; and

c_j is its lower asymptote parameter, reflecting possibly non-zero chances of correct response from even persons of very low proficiency; for free response items, c was fixed at zero.

Note that this is a montone increasing function with respect to θ, i.e., conditional probability of correct response increases as the value of θ increases. In addition, a linear indeterminacy exists with respect to the values of θ_i, a_j, and b_j for a scale defined under the three-parameter model. That is, for an arbitrary linear transformation of θ, say $\theta^* = M\theta + X$, the corresponding transformations $a^*_j = a_j/M$ and $b^*_j = Mb_j + X$ give:

$$P(x_{ij}=1|\theta_i^*,a_j^*,b_j^*,c_j^*)=P(x_{ij}=1|\theta_i,a_j,b_j,c_j) \qquad (1)$$

Linear transformation of scales was used for linking the DOL scale to YAL scales by resolving this scale indeterminacy which involved setting an origin and unit size of θ to the reported subscale means and standard deviations of the young adult literacy assessment.

The main assumption of the IRT is conditional independence, i.e., conditional on the individual's θ_i. The joint probability of a particular response pattern $x = (x_1,...,x_n)$ across a set of n items is simply the product of terms based on (1):

$$p(X|\theta_i,a,b,c) = \prod_{j=1}^{n} [p_j(\theta_i)]^{xj}[1 - p_j(\theta_i)]^{1-xj}$$

This also implies that item response probabilities depend only on θ (a measure of proficiency) and the specified item parameters, but not on any demographic characteristics of examinees, or on any other items which are presented together in a test, or on administration conditions.

Another assumption of the model unidimensionality, i.e., that performance on a set of items is accounted for by a single unidimensional variable, is probably too strong an assumption. However, the use of the model is motivated by the need to summarize overall performance parsimoniously within a single domain. The IRT summary is not expected to capture all meaningful variations in item response data, but to reflect the main patterns of correct responses in the populations and subpopulations of interest. Although proportions of correct responses may be over- or underestimated for some items for any given subpopulation, the average in the domain is represented accurately. Thus, the violations of the model with respect to dimensionality are less serious for inference based on overall proficiency.

- *Overview of Linking the DOL Scales to the Young Adult Literacy Scales*

Prose, document, and quantitative literacy results for DOL are reported on scales that were established in the young adult literacy assessment. For each scale, a number of new items unique to DOL were added to the item pool which was administered in the original YAL assessment. The DOL scales are linked to the

Table C.1 **Composition of Item Pool for DOL Survey**

Description	Number of Items Commmon to YAL	Number of New Items	DOL Total
Prose	13	31	44
Document	63	30	93
Quantitative	14	29	43
TOTAL	90	90	180

YAL scale based upon the commonality of the two assessments, namely the original YAL common items. Fifty percent of the items administered in the DOL survey were common to the YAL assessment. The composition of the item pool is presented in Table C.1. The rationale behind these scales is given in Chapter 3.

A unidimensional IRT model like the three-parameter logistic model employed in this study assumes that performance on all the items in a domain can, for the most part, be accounted for by a single (unobservable) proficiency variable. Subsequent IRT linking and scaling analyses treated each scale separately, i.e., a unique proficiency is assumed for each scale; hence, the linking of scales was carried out for each scale separately. The three steps used to link the two scales are listed below; additional details follow.

1. Establish provisional IRT scales through common item parameter calibration based on a pooling of the DOL and YAL items.
2. Estimate distribution of proficiencies on the provisional IRT scales using "plausible value" methodology.
3. Align the DOL scale to the YAL scale by a linear transformation based upon the commonality of proficiency distribution of the YAL sample.

• *Item Parameter Estimation ("Item Calibration")*

Identical item calibration procedures, described here in detail, were carried out separately for each of the four literacy assessment scales. Using a modified version of Mislevy and Bock's (1982) BILOG computer program, the three-parameter logistic IRT model was fit to each item (but with lower asymptote parameters fixed at zero for free-response items) using sample weights.

Since 1985, the same items used in the original YAL assessment have been used for several assessments and surveys, including the current DOL assessment. Across four assessments, more than 13,000 individuals have responded to either the entire set or a subset of tasks administered in the DOL survey; the assessments include the young adult survey, the Oregon and Mississippi state surveys, and an assessment for phase II of the DOL contract. The data accumulated from all surveys were included in a calibration sample in order to obtain stable item parameter estimates and to simplify scale linking procedures. The current method of parameter calibration effectively put all survey results on a single provisional common scale. Only a linear indeterminacy needed to be resolved in order to align the provisional scale to the reporting scale.

Sample weights were used during item calibration. It is known that subpopulation distributions within separate assessment samples are different. Such differences may arise because of the following factors: the characteristics of the target populations, the sampling design, or the randomness of sampling. For example, often

over-sampling of minority group populations is necessary to ensure a certain degree of accuracy in the estimates of group proficiencies. In such a case, the unweighted sample would not correctly represent the population which is targeted. Post-stratified weights take into account a sampling design such as over-sampling as well as randomness of real data. By applying post-stratified weights, vital characteristics of the sample can be closely matched to the characteristics of the population. During calibration the fit of item parameters is maximized in reference to the proficiency distribution of the calibration sample. It is ideal to match the proficiency distribution of the calibration sample as closely as possible to that of the population when item parameters are being estimated. It is more critical when item calibration is done on the combined proficiency distribution of multiple assessment samples with great differences in proficiency distributions such as this DOL survey. It was not as critical for the analysis of the young adult assessment because the parameters of the young adult items were estimated based on one sample, and parameters of items common to NAEP were kept fixed; only items unique to the young adult assessment were estimated.

In order to obtain unbiased parameter estimations, proficiency distributions of separate assessment samples were estimated during calibration. It is known that the samples for each of the assessments came from several populations with different characteristics. In addition, the items administered to each assessment sample were not entirely the same; varying numbers of items were unique to a particular assessment. The calibration procedure should take into account the possibility of such systematic interaction of samples and items in order to estimate unbiased estimates of sample distributions and item parameters. For that reason, a normal distribution with a unique mean and variance for each assessment population was estimated concurrently with item parameters. Estimated item parameters are presented in Tables C.2 through C.4 by scale.

Table C.2 Prose Literacy Item Parameters

Item #	A	SE(A)	B	SE(B)	C	SE(C)	Locate
AB21101	1.048	0.032	−1.810	0.043	0.000	0.000	30
AB21201	1.008	0.025	−1.031	0.024	0.000	0.000	31
AB30501	0.558	0.012	0.686	0.015	0.000	0.000	38
AB31201	0.664	0.015	0.593	0.013	0.000	0.000	45
AB40901	0.822	0.019	−0.009	0.014	0.000	0.000	57
AB41001	0.663	0.018	−1.268	0.038	0.000	0.000	58
AB50101	0.486	0.014	2.026	0.040	0.000	0.000	59
AB50201	1.043	0.070	0.974	0.033	0.196	0.015	60
AB60201	1.286	0.030	−0.491	0.013	0.000	0.000	76
AB60601	0.927	0.021	−0.145	0.014	0.000	0.000	86
AB70101	0.453	0.021	−3.651	0.169	0.000	0.000	93
AB70401	0.683	0.016	−0.831	0.026	0.000	0.000	96
AB71001	1.249	0.064	−0.332	0.057	0.266	0.029	105
AB80801	1.146	0.036	−0.772	0.024	0.000	0.000	563
AB80901	0.908	0.026	0.016	0.018	0.000	0.000	564
AB81101	1.035	0.035	−0.618	0.028	0.000	0.000	568
AB81201	0.294	0.016	−0.533	0.076	0.000	0.000	569
AB81301	0.803	0.029	0.662	0.019	0.000	0.000	570
AB90401	1.235	0.034	−0.059	0.015	0.000	0.000	575
AB90501	1.123	0.029	−0.478	0.022	0.000	0.000	576
AB90601	1.298	0.037	−0.038	0.015	0.000	0.000	577
AB90701	1.578	0.042	−0.650	0.018	0.000	0.000	578
AB90801	0.852	0.023	0.246	0.016	0.000	0.000	579
A100201	1.012	0.033	−1.173	0.034	0.000	0.000	587
A100301	0.860	0.024	−0.460	0.023	0.000	0.000	588
A101101	0.767	0.024	0.429	0.018	0.000	0.000	596
A101201	0.631	0.027	2.044	0.050	0.000	0.000	597
A111101	0.772	0.025	−0.072	0.022	0.000	0.000	608
A111201	0.580	0.022	1.201	0.028	0.000	0.000	609
A111301	0.870	0.041	−2.469	0.102	0.000	0.000	610
A111401	1.148	0.045	−1.072	0.040	0.000	0.000	611
A120301	0.958	0.028	−1.307	0.037	0.000	0.000	615
A120401	0.456	0.015	−0.045	0.030	0.000	0.000	616
A120501	0.946	0.033	−1.881	0.054	0.000	0.000	617
A121201	1.175	0.039	−0.375	0.022	0.000	0.000	624
A121301	0.838	0.026	−0.125	0.024	0.000	0.000	625
A121401	1.039	0.040	−1.129	0.043	0.000	0.000	626
A130601	1.221	0.037	−1.275	0.028	0.000	0.000	632
A130701	1.073	0.028	−0.189	0.017	0.000	0.000	633
A130801	0.515	0.016	−0.913	0.043	0.000	0.000	634
A130901	1.639	0.047	−0.241	0.013	0.000	0.000	635
A131001	1.590	0.044	−0.297	0.014	0.000	0.000	636
A131101	0.852	0.023	0.271	0.016	0.000	0.000	637
AB30602	0.939	0.025	0.125	0.015	0.000	0.000	644

Table C.3 Document Literacy Item Parameters

Item #	A	SE(A)	B	SE(B)	C	SE(C)	Locate
SCOR100	0.526	0.013	-4.281	0.109	0.000	0.000	1
SCOR200	0.572	0.009	-2.510	0.044	0.000	0.000	2
SCOR300	1.262	0.022	-2.127	0.026	0.000	0.000	3
SCOR400	0.448	0.007	-2.713	0.052	0.000	0.000	4
SCOR500	0.679	0.009	-1.902	0.028	0.000	0.000	5
AB20101	1.126	0.032	-0.210	0.043	0.194	0.025	20
AB20201	0.862	0.022	-0.074	0.048	0.099	0.026	21
AB20301	1.109	0.029	0.692	0.024	0.144	0.013	22
AB20401	0.453	0.015	-0.593	0.126	0.123	0.041	23
AB20501	0.434	0.012	-0.727	0.109	0.096	0.035	24
AB20601	0.997	0.022	-0.152	0.036	0.104	0.020	25
AB20701	0.516	0.018	0.275	0.090	0.111	0.031	26
AB20801	1.108	0.029	0.796	0.022	0.088	0.012	27
AB20901	1.087	0.038	1.534	0.018	0.152	0.008	28
AB21001	0.712	0.022	0.504	0.055	0.126	0.023	29
AB21301	0.600	0.013	-1.301	0.044	0.000	0.000	32
AB21501	0.847	0.015	-0.373	0.021	0.000	0.000	33
AB30101	1.012	0.018	-0.923	0.022	0.000	0.000	34
AB30201	0.622	0.013	-1.359	0.040	0.000	0.000	35
AB30301	0.885	0.016	-0.823	0.023	0.000	0.000	36
AB30401	0.689	0.011	-0.012	0.017	0.000	0.000	37
AB30701	0.998	0.018	-0.634	0.019	0.000	0.000	40
AB30801	0.759	0.012	1.118	0.010	0.000	0.000	41
AB30901	0.279	0.008	-0.081	0.040	0.000	0.000	42
AB31001	0.907	0.014	0.401	0.011	0.000	0.000	43
AB31101	0.727	0.013	-0.340	0.021	0.000	0.000	44
AB31301	0.818	0.016	-0.926	0.028	0.000	0.000	46
AB40101	0.849	0.016	-0.864	0.025	0.000	0.000	47
AB40401	1.186	0.018	0.749	0.008	0.000	0.000	50
AB50401	0.791	0.014	-0.842	0.025	0.000	0.000	62
AB50402	0.715	0.012	0.378	0.013	0.000	0.000	63
AB50501	0.402	0.009	-0.459	0.034	0.000	0.000	66
AB50601	1.055	0.018	-0.170	0.014	0.000	0.000	67
AB50701	1.234	0.022	-0.322	0.014	0.000	0.000	68
AB50801	0.752	0.018	-1.583	0.045	0.000	0.000	69
AB50901	0.862	0.015	-0.465	0.019	0.000	0.000	70
AB51001	0.256	0.009	0.324	0.037	0.000	0.000	71
AB60101	1.257	0.020	-0.512	0.013	0.000	0.000	72
AB60102	1.597	0.027	-0.377	0.010	0.000	0.000	73
AB60103	0.956	0.015	-0.630	0.018	0.000	0.000	74
AB60104	1.457	0.025	-0.493	0.011	0.000	0.000	75
AB60301	1.521	0.033	-1.202	0.021	0.000	0.000	77
AB60302	1.058	0.022	-1.446	0.032	0.000	0.000	78
AB60303	1.112	0.018	-0.570	0.016	0.000	0.000	79
AB60304	0.895	0.013	0.452	0.010	0.000	0.000	80
AB60305	0.699	0.011	-0.344	0.019	0.000	0.000	81
AB60306	0.991	0.017	-0.903	0.023	0.000	0.000	82
AB60401	0.639	0.015	-1.854	0.053	0.000	0.000	83
AB60501	1.195	0.022	1.995	0.012	0.000	0.000	84
AB60502	1.032	0.015	0.868	0.008	0.000	0.000	85
AB60701	1.309	0.030	-1.085	0.026	0.000	0.000	87
AB60801	0.973	0.024	-1.513	0.044	0.000	0.000	88
AB60802	1.138	0.032	-1.702	0.048	0.000	0.000	89
AB60803	1.394	0.039	-1.625	0.042	0.000	0.000	90
AB61001	0.721	0.019	-1.476	0.051	0.000	0.000	92
AB70104	0.583	0.013	-1.720	0.053	0.000	0.000	94
AB70301	0.785	0.013	-0.165	0.017	0.000	0.000	95
AB70701	0.800	0.013	-0.056	0.015	0.000	0.000	99
AB70801	1.149	0.021	-0.868	0.021	0.000	0.000	100
AB70901	0.967	0.022	-1.268	0.032	0.000	0.000	101

Table C.3 (Continued)

Document Literacy Item Parameters

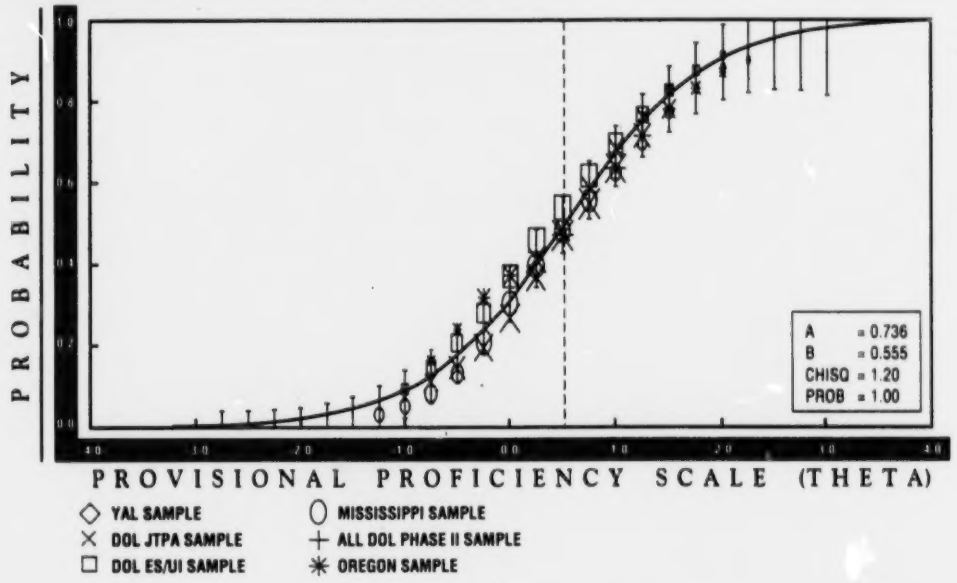
Item #	A	SE(A)	B	SE(B)	C	SE(C)	Locate
AB70902	1.084	0.018	−0.077	0.013	0.000	0.000	102
AB70903	1.340	0.027	−0.778	0.017	0.000	0.000	103
AB71201	0.878	0.027	−1.996	0.065	0.000	0.000	107
AB80101	0.543	0.015	−0.648	0.041	0.000	0.000	556
AB80301	1.145	0.034	−1.330	0.038	0.000	0.000	558
AB80401	1.013	0.028	−0.794	0.030	0.000	0.000	559
AB81001	1.115	0.030	−0.274	0.023	0.000	0.000	565
AB81002	0.987	0.025	0.588	0.014	0.000	0.000	566
AB90101	0.905	0.022	−0.438	0.024	0.000	0.000	571
AB90901	0.934	0.020	0.495	0.014	0.000	0.000	580
AB91101	0.930	0.022	−0.419	0.024	0.000	0.000	582
AB91301	0.627	0.017	1.170	0.018	0.000	0.000	584
AB91401	0.839	0.021	0.812	0.015	0.000	0.000	585
A100401	0.483	0.014	1.568	0.026	0.000	0.000	589
A100501	0.997	0.028	2.002	0.020	0.000	0.000	590
A100601	0.501	0.016	2.781	0.054	0.000	0.000	591
A100701	0.739	0.019	1.658	0.020	0.000	0.000	592
A110201	0.813	0.020	−0.935	0.038	0.000	0.000	599
A110301	1.050	0.032	−1.126	0.040	0.000	0.000	600
A110501	0.774	0.027	−1.906	0.075	0.000	0.000	602
A110701	0.827	0.020	−0.221	0.024	0.000	0.000	604
A110801	0.532	0.016	−0.644	0.045	0.000	0.000	605
A120601	1.021	0.033	−1.237	0.046	0.000	0.000	618
A120701	0.530	0.015	0.030	0.030	0.000	0.000	619
A120801	0.729	0.019	1.284	0.016	0.000	0.000	620
A120901	0.611	0.018	−0.947	0.050	0.000	0.000	621
A130101	0.937	0.022	−0.473	0.025	0.000	0.000	627
A130201	1.334	0.036	−0.829	0.024	0.000	0.000	628
A130301	0.960	0.023	1.561	0.015	0.000	0.000	629
A130401	0.639	0.017	−0.637	0.036	0.000	0.000	630
A131201	1.030	0.028	−0.831	0.032	0.000	0.000	638
A131301	0.620	0.016	0.398	0.022	0.000	0.000	639
AB71104	0.680	0.018	1.027	0.016	0.000	0.000	646

Table C.4 Quantitative Literacy Item Parameters

Item #	A	SE(A)	B	SE(B)	C	SE(C)	Locate
AB40201	0.735	0.014	0.554	0.012	0.000	0.000	48
AB40301	0.689	0.049	0.177	0.103	0.447	0.026	49
AB40501	0.821	0.015	0.024	0.011	0.000	0.000	51
AB40601	0.920	0.017	−0.578	0.014	0.000	0.000	52
AB40701	1.660	0.028	−0.516	0.010	0.000	0.000	53
AB40702	2.061	0.041	−0.337	0.009	0.000	0.000	54
AB40703	1.708	0.031	−0.344	0.010	0.000	0.000	55
AB40704	1.825	0.034	−0.325	0.009	0.000	0.000	56
AB50403	0.629	0.015	0.646	0.015	0.000	0.000	64
AB50404	1.002	0.023	−1.079	0.020	0.000	0.000	65
AB60901	0.519	0.014	−0.304	0.022	0.000	0.000	91
AB70501	1.044	0.021	0.149	0.010	0.000	0.000	97
AB70601	1.007	0.018	0.487	0.010	0.000	0.000	98
AB70904	0.839	0.023	−1.967	0.043	0.000	0.000	104
AB80201	0.858	0.024	−0.773	0.025	0.000	0.000	557
AB80501	1.154	0.038	1.041	0.017	0.000	0.000	560
AB80601	0.574	0.018	−0.865	0.036	0.000	0.000	561
AB80701	0.712	0.020	−0.434	0.024	0.000	0.000	562
AB81003	0.765	0.022	−0.597	0.028	0.000	0.000	567
AB90102	0.867	0.024	−0.884	0.026	0.000	0.000	572
AB90201	0.895	0.022	−0.578	0.022	0.000	0.000	573
AB90301	1.029	0.027	0.025	0.014	0.000	0.000	574
AB91001	0.887	0.029	1.106	0.021	0.000	0.000	581
AB91201	0.929	0.027	−0.981	0.028	0.000	0.000	583
A100101	0.672	0.018	−0.477	0.024	0.000	0.000	586
A100801	0.884	0.025	0.525	0.015	0.000	0.000	593
A100901	0.663	0.020	0.456	0.019	0.000	0.000	594
A101001	0.977	0.029	0.800	0.016	0.000	0.000	595
A110101	0.813	0.023	−0.762	0.026	0.000	0.000	598
A110401	1.224	0.033	0.170	0.012	0.000	0.000	601
A110601	0.610	0.018	1.104	0.028	0.000	0.000	603
A110901	0.962	0.027	0.385	0.014	0.000	0.000	606
A111001	0.807	0.022	0.433	0.017	0.000	0.000	607
A120101	1.012	0.027	−0.364	0.017	0.000	0.000	613
A120201	0.881	0.023	0.240	0.015	0.000	0.000	614
A121001	0.938	0.029	−0.887	0.028	0.000	0.000	622
A121101	0.858	0.027	0.522	0.016	0.000	0.000	623
A130501	0.788	0.021	0.331	0.017	0.000	0.000	631
A131401	1.051	0.027	0.059	0.015	0.000	0.000	640
A131501	0.914	0.028	1.042	0.019	0.000	0.000	641
A131601	1.066	0.031	−0.669	0.022	0.000	0.000	642
A131701	1.008	0.030	−0.155	0.018	0.000	0.000	643
AB50304	0.808	0.029	1.742	0.036	0.000	0.000	645

Model fit was evaluated at the item level by examining BILOG likelihood ratio chi-square statistics for each survey sample.[1] The fit was also evaluated by inspecting residuals from fitted item response curves. A typical plot is shown in Figure C.1. The smooth line is the fitted three-parameter logistic item response curve; the legends are (approximate) expected proportions of correct response at various points along the provisional proficiency scale. The size of the mark on a figure is proportional to the information available in the calibration data in that region of the scale. In the plot, all calibration samples were represented by unique mark on a figure. In general, the fit of the model was quite good. For some items there was evidence that the estimated parameters did not fit as well to a certain assessment sample as compared with the other samples; however, it was not always the same sample to which the estimated parameters did not fit. No item was dropped from calibration because of lack of fit.

Figure C.1 Item Response Curve For Task from Original Young Adult Assessment



In the figure, the horizontal axis represents the provisional proficiency scale derived directly from the calibration procedure, and the scale is without transformation.

[1] The sampling distributions are probably not strictly X^2 with the indicated degrees of freedom. Therefore, they were used as descriptive indices of relative model fit rather than as a statistical test of fit.

• Proficiency Estimation by Plausible Values

In most applications of IRT, precise estimates are desired about each respondent's proficiency for the purposes of individual diagnosis, selection, or placement. A sufficient number of items is thus administered to each respondent to ensure that his or her proficiency can be estimated to a fine degree of accuracy, and testing times of several hours are not unusual. Since the uncertainty associated with each θ is negligible, the distribution of θ or the joint distribution of θ with other variables can then be approximated using individual $\hat{\theta}$s.

More efficient estimates of the distribution of proficiencies in a group of persons, however, can be obtained from a sampling design like that of the DOL literacy survey, which solicits relatively few responses from each sampled respondent. The advantage of more efficient estimation of population characteristics is offset by the inability to make precise statements about individuals. Uncertainty associated with individual θ estimates is too large to be ignored. Point estimates of proficiency that were in some sense optimal for each sampled respondent could lead to seriously biased estimates of population characteristics (Wingersky, Kaplan, & Beaton, 1987.)

Plausible values methodology was developed as a way to estimate key population features consistently and to approximate others no worse than standard IRT procedures would. A detailed development of plausible values methodology is given in Mislevy (1991). Along with theoretical justifications, Mislevy presents comparisons with standard procedures, discussions of biases that arise in some secondary analyses, and numerical examples.

One can, however, express what is known about the vector $\theta_i = (\theta_{i1},\theta_{i2},\theta_{i3},\theta_{i4})$ of respondent i's proficiency values in four subscales, once his or her vectors of item responses ($\mathbf{x}_i$) and background and attitude responses ($\mathbf{y}_i$) have been observed, in terms of a plausible distribution for his or her θ: $p(\theta|\mathbf{x}_i,\mathbf{y}_i)$. The value of any function $T(\theta,\mathbf{y})$ of reading proficiency and other background variables could then be estimated from the data by evaluating the integral

$$E[T(\theta,\mathbf{Y})\,|\,\mathbf{X},\mathbf{Y}]=\int T(\theta,\mathbf{Y})p(\theta|\mathbf{X},\mathbf{Y})d\theta,$$

where θ, $\mathbf{X}$, and $\mathbf{Y}$ represent vectors of proficiency, item responses, and background responses respectively over the entire sample. The validity of the above equation extends to functions T that take case weights into account, involve more than one literacy scale, or reflect relationships between literacy scales and background variables.

Evaluation of the above equation is generally difficult. The approximations used for the literacy assessment, as described below, are derived from Rubin's (1987) approach to missing data in sample surveys. Details of the extension to IRT are given in Mislevy (1991).

Note, first, that by standard rules of probability, the conditional probability of proficiency given x_i and y_i can be represented as follows

$$P(\theta_i \mid x_i, y_i) \propto P(x_i \mid \theta_i, y_i) \bullet P(\theta_i \mid y_i). \qquad (2)$$

The first factor in equation 2 is given by the item response model, denoting the responses to items from scale k taken by respondent i as $x_{ik1}, \ldots, x_{ijk}, \ldots$ and subscripting item parameters in a similar manner,

$$P(\mathbf{x}_i \mid \theta_i, \mathbf{y}_i) = \prod_k \prod_j P(x_{ijk} \mid \theta_{ik}, a_{kj}, b_{kj}, c_{kj}).$$

The second factor in equation 2 gives the conditional distribution of θ given background responses. That background variables y do not appear on the right is a consequence of the IRT assumption of local independence, which was checked empirically for gender and ethnicity groups as described earlier. This distribution was assumed multivariate normal in the literacy assessment:

$$P(\theta \mid \mathbf{y}) \sim MVN(t_i \bullet B, \Sigma)$$

where

- t_i is a vector of design coefficients determined by the status of respondent i on selected background responses;
- B is a matrix of regression coefficients; and
- Σ is a common dispersion matrix for residuals.

The background variables embodied in t included gender, ethnicity, Spanish language interview, region of the country, respondent's education, parental education, occupation, and selected reading practices, as well as others. A main effects model was assumed. Details of the coding scheme are shown in Table 7.2 found in Chapter 7 of this report.

Note that in order to be strictly correct for all functions T of θ, it is necessary that $p(\theta \mid \mathbf{y})$ be correctly specified for all background variables in the survey. In the DOL assessment, however, resource limitations precluded the use of all background variables in this manner. Those variables chosen (as specified in Table 7.2) were chosen to reflect high policy relevance. The computation of marginal means and percentile points of θ for these variables is nearly optimal. Estimates of functions T involving background variables not conditioned upon in this manner are subject to estimation error due to misspecification. The nature of these errors was discussed in detail in Mislevy (1991). Their magnitudes diminish as each respondent provides more cognitive data, i.e., a greater number of items are answered. Indications are that their magnitudes are negligible in the NAEP literacy assessment (e.g., biases in

regression coefficients falling below 5 percent) due to the large numbers of cognitive items presented to each respondent in the survey. The exception is the subsample of respondents who could not proceed beyond the simple core questions. These respondents possess few literacy skills, if any, in English, and detailed analyses of their cognitive scores, not surprisingly, may lead to unstable results.

Estimation of B and S were accomplished with the EM procedure described in Mislevy (1985), as implemented in the computer program M-GROUP (Sheehan, 1986; see also Beaton, 1988, pp. 184-186). Case weights were employed in this step. Monte Carlo integration was required; estimation cycles ceased when, first, parameter estimates in B and Σ were no longer changing in consistent directions, and, secondly, the largest change from one cycle to the next was in the second decimal place. Resulting estimates are given in Tables C.5 and C.6.

Taking estimates of item parameters, B and Σ as known, an approximation of the predictive distribution of each θ_i could then be obtained via equation 2. Five random four-tuples, or vectors of plausible values were drawn for each respondent from his or her predictive distribution. This step was also accomplished with the M-GROUP program. The plausible values can then be employed to evaluate equation 1 for an arbitrary function T as follows:

1) Using the first vector of plausible values for each respondent, evaluate T as if the plausible values were the true values of θ. Denote the result T_1.
2) In the same manner as in step 1 above, evaluate the sampling variance of T, or $Var(T_1)$, with respect to respondents' first vectors of plausible values. Denote the result Var_1.
3) Carry out steps 1 and 2 for the second through fifth vectors of plausible values, thus obtaining T_u and Var_u for u=2, . . .,5.
4) The best estimate of T obtainable from the plausible values is the average of the five values obtained from the different sets of plausible values:

$$T_. = \frac{\sum_u T_u}{5}$$

5) An estimate of the variance of $T_.$ is the sum of two components, one being an estimate of $Var(T_u)$ obtained in the manner of step 4 and the other being the variance among the T_u's:

$$Var(T_.) = \frac{\sum_u Var_u}{5} + \frac{\sum_u (T_u - T_.)^2}{4}$$

Table C.5 JTPA Gamma

	Prose	Docum.	Quant.		Prose	Docum.	Quant.
1	0.3036	0.7092	0.0574	53	0.0570	0.0005	-0.0067
2	0.0252	0.0221	0.0258	54	0.1077	0.0576	0.0084
3	0.0024	0.0056	0.0099	55	-0.0671	-0.0390	-0.0019
4	0.0644	0.0567	0.0608	56	0.0435	0.0488	-0.0101
5	0.0219	0.0123	0.0181	57	-0.0774	-0.0817	-0.0575
6	-0.0220	-0.0158	0.0220	58	-0.0813	-0.0467	-0.0489
7	0.0127	0.0140	0.0157	59	0.0290	-0.0349	-0.0022
8	0.0568	0.0598	0.0366	60	-0.0325	0.0469	0.0133
9	0.0399	0.0317	0.0437	61	-0.0513	-0.0586	-0.0946
10	0.0218	0.0016	-0.0061	62	-0.1020	-0.0543	-0.0300
11	0.0259	0.0283	0.0266	63	0.0275	0.0623	0.1048
12	-0.0419	-0.0379	-0.0520	64	0.0167	-0.0173	-0.0312
13	0.0013	-0.0240	-0.0087	65	-0.0260	-0.0219	-0.0105
14	-0.0655	-0.0432	-0.0618	66	0.1126	0.1924	0.1679
15	0.0505	0.0910	0.0873	67	-0.0446	-0.0659	-0.1328
16	0.0279	0.0628	0.0498	68	-0.1424	-0.1244	-0.1287
17	-0.0849	-0.0754	-0.0903	69	0.1118	0.0995	0.1453
18	-0.0577	-0.0343	-0.0588	70	0.0623	0.0320	0.0394
19	-0.0561	-0.0203	-0.0346	71	-0.0582	-0.0527	-0.1094
20	0.0391	0.0411	0.0161	72	0.0418	0.0465	-0.0683
21	0.0170	-0.0023	-0.0087	73	0.1061	0.0846	-0.0285
22	-0.0345	-0.0452	-0.0364	74	0.1693	0.1096	0.0730
23	-0.0495	-0.0294	-0.0184	75	-0.1153	-0.1264	-0.0864
24	-0.0213	-0.0331	-0.0439	76	0.1258	0.1418	0.0746
25	-0.0612	-0.0246	-0.0312	77	-0.0281	-0.0928	-0.1072
26	-0.0036	-0.0114	-0.0359	78	0.0212	0.0382	0.0501
27	0.0080	-0.0277	-0.0290	79	-0.1835	-0.0581	-0.0364
28	-0.0209	-0.0104	0.0315	80	0.0172	0.0642	-0.0177
29	0.0365	0.0554	0.0430	81	-0.1256	-0.1655	-0.2001
30	-0.0349	-0.0614	-0.0239	82	0.0534	-0.0315	0.1431
31	0.0452	0.0423	0.0772	83	-0.0029	-0.0683	-0.1315
32	-0.0999	-0.0419	-0.0524	84	0.0834	0.1292	0.1078
33	0.0463	-0.0178	0.0040	85	0.0489	-0.0501	0.1051
34	0.0258	0.0332	0.0354	86	0.0222	0.0329	0.0939
35	-0.0377	-0.0186	-0.0264	87	0.0041	-0.0291	-0.0772
36	0.0532	0.0218	0.0180	88	0.2081	0.1332	0.1407
37	0.0511	0.0156	0.0205	89	0.0099	-0.0176	0.0321
38	-0.0482	-0.0441	-0.0383	90	-0.0552	0.0190	-0.0251
39	-0.0477	-0.0291	-0.0224	91	-0.1388	-0.0669	-0.1041
40	0.0898	0.0542	0.0470	92	0.1642	0.1727	0.0817
41	0.0002	0.0384	-0.0163	93	-0.1270	0.0203	0.1000
42	0.0570	0.0111	0.0024	94	0.0140	-0.0308	-0.0445
43	0.0396	0.0305	-0.0045	95	-0.0216	-0.1168	-0.2519
44	-0.0365	-0.0172	-0.0524	96	0.0210	0.1436	-0.0046
45	0.0110	-0.0523	-0.0156	97	-0.0707	-0.1341	-0.1382
46	0.0567	0.0564	0.0571	98	0.0761	-0.1371	0.0494
47	0.0382	0.0421	0.0721	99	0.3083	0.0624	0.0146
48	-0.0717	-0.0163	0.0070	100	-0.0097	0.1113	0.1560
49	-0.0016	0.0086	-0.0084	101	0.2109	0.0155	0.0180
50	0.0692	0.0669	0.1217	102	0.0258	0.1298	0.1313
51	-0.0547	-0.0310	0.0090	103	0.0155	0.3508	0.1510
52	0.0202	0.0207	0.0173	104	0.0180	0.1510	0.4325

Table C.6 ES/UI Gamma

	Prose	Docum.	Quant.		Prose	Docum.	Quant.
1	0.4240	0.9010	0.2526	53	0.0098	−0.0117	−0.0053
2	0.0299	0.0305	0.0301	54	0.0444	0.0798	0.0162
3	0.0163	0.0122	0.0136	55	−0.0037	0.0085	0.0260
4	−0.0676	−0.0605	−0.0575	56	0.0682	0.0120	0.0052
5	−0.0218	−0.0124	−0.0031	57	−0.0935	−0.1007	−0.0522
6	−0.0424	−0.0308	−0.0310	58	0.0044	0.0324	0.0566
7	0.0636	0.0618	0.0459	59	−0.0291	−0.0278	−0.0445
8	0.0032	0.0180	0.0258	60	0.0351	−0.0493	0.0060
9	−0.0030	0.0122	0.0028	61	−0.0191	−0.0034	−0.0281
10	−0.0365	−0.0236	−0.0470	62	−0.0269	−0.0492	−0.0292
11	0.0032	0.0010	0.0097	63	−0.0165	0.0228	−0.0190
12	−0.0412	−0.0833	−0.0905	64	−0.0709	−0.0672	−0.0275
13	−0.0208	−0.0046	0.0042	65	−0.0184	0.0159	−0.0157
14	0.0113	0.0172	0.0349	66	0.0686	0.0923	0.0233
15	0.0355	0.0610	0.0425	67	0.0025	−0.0417	−0.0401
16	0.0088	0.0384	0.0314	68	0.0027	−0.0330	−0.0100
17	0.0234	0.0254	0.0381	69	−0.0161	−0.0043	−0.0427
18	−0.0070	0.0051	0.0398	70	0.0561	−0.0046	0.0112
19	−0.0638	−0.0709	−0.0603	71	−0.0992	−0.0961	−0.0436
20	−0.0504	−0.0111	−0.0045	72	−0.0790	0.0697	−0.0157
21	0.0291	0.0646	0.0871	73	0.0528	−0.0191	−0.0246
22	−0.0179	−0.0107	−0.0097	74	−0.0855	−0.0316	−0.0068
23	−0.0234	−0.0157	−0.0147	75	−0.0582	−0.0193	−0.0617
24	−0.0075	−0.0438	−0.0200	76	0.0208	0.0490	−0.0680
25	0.0691	0.1003	0.0726	77	0.1374	0.1479	0.1155
26	−0.0195	−0.0297	−0.0627	78	−0.0963	−0.0838	−0.1521
27	0.0238	−0.0015	0.0207	79	−0.1744	−0.1336	−0.1021
28	−0.0672	−0.0582	−0.0810	80	−0.0397	0.0851	0.0541
29	0.0381	0.0470	0.0522	81	−0.0739	−0.1069	−0.1604
30	−0.0305	−0.0759	−0.0232	82	−0.2078	−0.1617	−0.2230
31	−0.0176	−0.0139	−0.0109	83	−0.0540	−0.0271	−0.0479
32	−0.0174	−0.0224	−0.0373	84	0.0681	0.0436	0.0183
33	0.0612	0.0900	0.0530	85	0.1979	0.1539	0.1471
34	−0.0046	0.0292	0.0073	86	−0.2423	−0.1052	−0.0710
35	0.0163	0.0166	0.0274	87	−0.0922	−0.0899	−0.0989
36	0.0040	0.0257	0.0149	88	−0.1210	−0.1305	−0.2445
37	−0.0056	−0.0528	−0.0217	89	−0.0924	0.0654	0.0570
38	0.0152	0.0317	0.0682	90	0.1850	0.1768	0.1611
39	−0.0691	−0.0343	−0.0639	91	−0.0547	0.0791	0.0377
40	−0.0209	−0.0184	−0.0340	92	0.1329	0.1443	0.1119
41	−0.0403	−0.0055	−0.0599	93	−0.1559	−0.1519	−0.2452
42	−0.0350	−0.0149	−0.0661	94	−0.2505	−0.0782	−0.0842
43	−0.0838	−0.0421	−0.0549	95	−0.0519	−0.0214	−0.1105
44	0.0294	0.0329	0.0135	96	−0.1521	−0.1023	−0.1341
45	−0.0157	−0.0490	−0.0663	97	0.0653	0.1174	0.0669
46	−0.0906	−0.0390	−0.0302	98	0.0362	0.0700	0.0980
47	−0.0272	−0.0307	−0.0156	99	0.2086	0.0641	0.0346
48	0.0499	0.0419	0.0158	100	−0.1732	−0.1063	−0.3318
49	0.0874	0.0559	0.0575	101	0.2642	0.0216	0.0116
50	−0.0681	0.0172	−0.0052	102	0.0219	0.1249	0.1110
51	0.0488	0.0722	0.0448	103	0.0216	0.3710	0.1260
52	−0.0574	−0.0056	−0.0238	104	0.0116	0.1260	0.3989

The first component in Var(T.) reflects uncertainty due to sampling respondents from the population; the second component reflects uncertainty due to the fact that sampled respondents' θs are not known precisely, but only indirectly through x and y.

In the DOL assessment, a single standard error of measurement (SEM), as mentioned in steps 2 and 3 above, must be computed by means of a computationally burdensome jackknife procedure, requiring 50 separate calculations of the statistic of interest. Full implementation of the steps, then, would require a total of 250 calculations. Computing time can be reduced by nearly 80 percent by computing only SEM in step 2 and substituting it for the average of five SEMs that appears in step 5. This expedient adds no uncertainty whatsoever to T. itself, although it does increase the variability of the estimate of that uncertainty.

• *Linking the DOL Scale to the YAL Scale*

At this point, proficiency plausible values are still on the provisional scale and they need to be transformed to the YAL scale for comparison. The YAL scale was established in the following manner.

In the 1985 YAL assessment, items from four domains were administered; one of the domains consisted of some of the same items as those administered in the NAEP reading assessment in 1984. Relying upon the common items from the two assessments, the YAL sample proficiency distribution was placed on the NAEP reading scale which runs from 0 to 500. The mean and standard deviation of the YAL samples' plausible values were estimated to be 296.6 and 49.0. The mean and standard deviation of the other three scales, prose, document and quantitative, were set to these values also.

As noted before, for the purpose of the present study, item parameters from the YAL assessment were re-estimated using a larger sample and more accurate procedures than were available at the time of the 1985 analysis. These new item parameters are best suited for comparisons across distributions of samples, i.e., the relative standing of one sample in comparison to another. However, the new sets of item parameters on provisional domain scales and the old transformation constants which were used to produce the 1985 YAL scales would not necessarily produce identical results on the 1985 YAL sample. Therefore, new linear transformation constants for the YAL sample were found to match the mean and standard deviation of current plausible value distribution of the YAL sample based on the new item parameters. The same constants were applied to the DOL survey sample proficiency distribution. The transformation that was applied is as follows: $\theta = A\theta^* + B$ where θ^* is the provisional scale from item calibration and θ is the reported scale. Table C.7 presents the transformation constants and the mean and standard deviations for the distributions of the three domain scores.

Table C.7 **Transformation Constants Applied to Provisional Scale to Produce Reported Scale**

	OLD		NEW	
	A	B	A	B
PROSE	54.19	265.92	54.80	267.98
DOCUMENT	53.26	236.29	53.30	236.32
QUANTITATIVE	52.19	278.93	52.06	277.59

The item response model allows for the calculation of the probability of a correct response to a given item from a respondent at any point along the proficiency scale. Tables C.8 through C.10 give such probabilities for each item at points ranging from 150 to 450 in the RP scale at 50-point intervals. By this device, it is possible to convey the capabilities of a person at a given proficiency level in terms of performance one would expect to see on specific tasks. Also provided for each item are RP80 values, or the points along the RP proficiency scale at which 80 percent of the persons at that level would answer correctly.

• *Evaluation of Differential Group Performance*

Differential group performance was examined by constructing empirical characteristic curves of tests rather than of items for major subpopulations defined by variables such as gender and ethnicity.

Yamamoto and Muraki (1991) found that sets of estimated item parameters, each estimated on separate calibration samples differing in composition of ethnic groups, differed significantly even after an appropriate linear transformation was applied to account for the scale indeterminacy. This suggests differential item functioning (DIF) by subgroups. However, the test as a whole functioned equivalently, suggesting that the effects of a different set of item parameters on the estimated proficiency of subpopulations may be negligible. In fact, after a linear scale transformation to account for the scale indeterminacy is applied to the real data, the estimates of subgroup proficiency distributions using a different set of item parameters were virtually identical. Since our concern is with the presence of systematic bias against a particular subpopulation, it is more appropriate to evaluate differential group performance at the test level instead of at the item level. For that reason, empirical test characteristic curves for gender groups and ethnic groups were constructed.

These empirical test characteristic curves by subpopulation in comparison are shown in Figures C.2 through C.13. The figures show the averaged empirical proportion correct for the items in a subscale on the final proficiency scale by gender and race. It took two steps to estimate each point on the scale. For every item, the empirical proportion correct among samples whose proficiency values were in the selected range for at least one of 10 imputed values was calculated; then they were

averaged across items in a subscale. This procedure was repeated for every subpopulation of interest. Although several figures, such as Figure C.9, show deviations of TCCs by subpopulations in very low (below 240) or very high (above 360) proficiency ranges, the subpopulation in such extreme ranges of proficiency is very small and stable estimation cannot be made. Therefore, the comparison of TCCs should be made in the range of proficiency where most of the population is found.

If there were a systematic deviation of TCCs of subpopulations of interest, it could be considered as evidence that the test is differentially functioning for those subpopulations. However, if the subpopulation TCCs are quite similar, as we see in the Figures C.2 through C.13, we can safely conclude that for the test as a whole, differential functioning was not observed across gender or race/ethnicity in the current survey.

Table C.8 RP80s and Item Probabilities × 100: Prose Literacy

Item #	RP80	150	200	250	300	350	400	450
AB21101	209.4	36	75	94	99	100	100	100
AB21201	253.3	13	42	78	95	99	100	100
AB30501	381.4	6	14	28	49	70	85	93
AB31201	363.8	4	11	27	51	75	90	96
AB40901	318.5	5	15	40	71	90	97	99
AB41001	263.0	27	52	75	90	96	99	100
AB50101	465.6	3	6	13	24	40	59	76
AB50201	352.1	20	21	27	48	79	95	99
AB60201	273.3	3	17	61	92	99	100	100
AB60601	305.1	4	15	44	78	94	99	100
AB70101	164.4	77	87	93	97	98	99	100
AB70401	284.7	18	39	65	85	94	98	99
AB71001	272.6	28	36	65	92	99	100	100
AB80801	262.1	6	29	72	94	99	100	100
AB80901	314.9	3	13	38	72	92	98	100
AB81101	274.6	6	26	64	90	98	100	100
AB81201	385.1	31	41	53	64	74	82	88
AB81301	356.2	2	7	21	49	77	92	98
AB90401	298.0	1	8	38	81	97	100	100
AB90501	278.9	4	19	59	90	98	100	100
AB90601	297.5	1	7	36	82	97	100	100
AB90701	258.3	2	18	73	97	100	100	100
AB90801	330.5	3	11	31	64	87	96	99
A100201	245.5	16	48	82	96	99	100	100
A100301	291.7	8	25	56	83	95	99	100
A101101	346.1	3	10	28	57	82	94	98
A101201	445.9	1	3	7	18	37	61	81
A111101	318.3	6	18	43	72	90	97	99
A111201	406.3	3	8	18	36	59	78	90
A111301	182.3	62	87	96	99	100	100	100
A111401	245.9	11	43	82	97	99	100	100
A120301	240.6	20	54	84	96	99	100	100
A120401	359.0	16	29	45	63	78	88	94
A120501	210.1	40	75	93	98	100	100	100
A121201	282.7	3	15	54	88	98	100	100
A121301	311.2	5	17	44	75	92	98	99
A121401	246.7	14	46	82	96	99	100	100
A130601	232.6	14	53	89	98	100	100	100
A130701	296.3	3	13	45	82	96	99	100
A130801	301.0	25	43	63	80	90	95	98
A130901	279.5	1	6	46	92	99	100	100
A131001	277.3	1	8	50	93	99	100	100
A131101	331.9	3	10	30	63	87	96	99
AB30602	319.2	3	10	34	69	91	98	100

Table C.9 RP80s and Item Probabilities × 100: Document Literacy

Item #	RP80	150	200	250	300	350	400	450
SCOR100	89.7	92	96	98	99	100	100	100
SCOR200	177.5	71	86	94	98	99	100	100
SCOR300	157.0	75	96	99	100	100	100	100
SCOR400	187.4	70	83	91	95	98	99	99
SCOR500	198.1	58	81	93	97	99	100	100
AB20101	255.6	24	43	77	95	99	100	100
AB20201	277.4	18	36	66	88	97	99	100
AB20301	306.3	16	20	40	76	95	99	100
AB20401	288.0	40	55	70	83	91	95	98
AB20501	287.2	40	56	71	83	91	95	98
AB20601	266.9	17	36	70	92	98	100	100
AB20701	325.1	25	38	55	73	86	93	97
AB20801	314.2	10	14	33	71	93	99	100
AB20901	351.5	15	17	22	45	79	96	99
AB21001	316.0	19	29	50	74	90	96	99
AB21301	238.5	42	66	83	93	97	99	100
AB21501	267.0	14	39	72	91	98	99	100
AB30101	229.5	23	60	89	98	100	100	100
AB30201	232.9	43	67	85	94	98	99	100
AB30301	241.0	23	55	84	96	99	100	100
AB30401	297.9	13	31	58	81	93	98	99
AB30701	245.5	16	48	82	96	99	100	100
AB30801	352.4	3	9	25	53	79	93	98
AB30901	385.6	32	43	54	65	74	82	88
AB31001	305.0	4	16	44	78	94	99	100
AB31101	277.2	17	40	68	87	96	99	100
AB31301	239.4	27	59	84	95	99	100	100
AB40101	240.8	25	57	84	95	99	100	100
AB40401	312.4	1	5	27	71	94	99	100
AB50401	245.7	26	55	82	94	98	100	100
AB50402	316.5	8	21	46	73	90	97	99
AB50501	318.5	31	46	62	76	86	92	96
AB50601	267.9	7	28	69	92	99	100	100
AB50701	253.9	6	32	77	96	100	100	100
AB50801	209.0	49	76	92	97	99	100	100
AB50901	261.3	15	42	75	92	98	100	100
AB51001	421.0	30	39	49	60	69	77	84
AB60101	243.1	8	41	84	98	100	100	100
AB60102	243.0	3	30	85	99	100	100	100
AB60103	247.6	16	48	81	95	99	100	100
AB60104	239.5	6	38	87	99	100	100	100
AB60301	200.5	25	80	98	100	100	100	100
AB60302	199.8	42	80	96	99	100	100	100
AB60303	244.5	12	45	83	97	99	100	100
AB60304	308.3	4	15	43	76	93	98	100
AB60305	279.3	18	40	67	87	95	98	100
AB60306	231.5	23	59	88	97	99	100	100
AB60401	204.7	56	78	91	97	99	100	100
AB60501	378.5	0	0	3	16	57	90	98
AB60502	324.2	1	6	25	64	90	98	100
AB60701	211.3	23	71	95	99	100	100	100
AB60801	199.8	46	80	95	99	100	100	100
AB60802	183.3	54	88	98	100	100	100	100
AB60803	180.5	50	91	99	100	100	100	100
AB61001	217.1	46	73	90	97	99	100	100
AB70104	218.2	53	74	88	95	98	99	100
AB70301	282.1	12	33	64	86	96	99	100
AB70701	287.0	10	30	61	85	95	99	100
AB70801	227.4	19	59	90	98	100	100	100
AB70901	213.1	36	73	93	98	100	100	100

Table C.9 (continued) RP80s and Item Probabilities × 100: Document Literacy

Item #	RP80	150	200	250	300	350	400	450
AB70902	271.8	5	25	65	92	98	100	100
AB70903	226.9	13	56	92	99	100	100	100
AB71201	178.8	64	88	97	99	100	100	100
AB80101	280.7	29	49	70	85	93	97	99
AB80301	202.9	36	78	96	99	100	100	100
AB80401	236.9	19	55	86	97	99	100	100
AB81001	260.2	7	31	74	94	99	100	100
AB81002	311.1	2	10	36	74	93	99	100
AB90101	260.3	14	41	75	93	98	100	100
AB90901	308.6	3	13	41	76	93	98	100
AB91101	260.1	13	40	75	93	98	100	100
AB91301	367.0	5	12	27	51	74	89	96
AB91401	330.7	3	10	31	64	87	96	99
A100401	408.6	7	13	25	42	62	78	88
A100501	386.0	0	1	5	20	56	86	97
A100601	470.1	2	5	10	20	36	56	74
A100701	382.7	2	5	14	36	65	86	95
A110201	239.2	28	59	84	95	99	100	100
A110301	217.2	29	69	92	99	100	100	100
A110501	190.2	59	84	95	98	100	100	100
A110701	276.4	12	34	66	88	97	99	100
A110801	282.6	29	49	70	84	93	97	99
A120601	212.4	34	73	93	99	100	100	100
A120701	318.9	18	34	55	74	87	94	97
A120801	363.5	3	8	22	47	74	90	97
A120901	256.1	33	57	78	91	96	99	100
A130101	256.9	14	42	77	94	99	100	100
A130201	224.3	14	58	92	99	100	100	100
A130301	364.2	1	2	10	35	72	92	98
A130401	270.3	26	49	73	88	95	98	99
A131201	233.7	20	57	87	97	100	100	100
A131301	326.7	10	24	46	70	86	95	98
AB71104	354.1	4	12	29	55	79	92	97

Table C.10 RP80s and Item Probabilities × 100: Quantitative Literacy

Item #	RP80	150	200	250	300	350	400	450
AB40201	365.1	2	7	20	45	74	90	97
AB40301	313.1	47	51	61	76	89	96	99
AB40501	331.4	3	10	31	63	87	96	99
AB40601	294.5	5	19	51	83	96	99	100
AB40701	277.3	0	6	47	93	100	100	100
AB40702	281.7	0	2	32	93	100	100	100
AB40703	285.6	0	3	35	90	99	100	100
AB40704	285.0	0	2	33	91	100	100	100
AB50403	379.5	3	9	21	44	68	86	95
AB50404	264.6	8	32	71	93	99	100	100
AB60901	344.1	13	25	44	65	82	91	96
AB70501	327.1	1	5	22	61	90	98	100
AB70601	346.2	1	3	14	46	82	96	99
AB70904	226.3	33	66	89	97	99	100	100
AB80201	287.5	8	25	58	85	96	99	100
AB80501	369.7	0	1	4	22	65	93	99
AB80601	307.0	17	35	58	78	90	96	98
AB80701	315.3	8	21	46	74	90	97	99
AB81003	302.7	8	23	51	79	93	98	99
AB90102	281.3	9	28	62	87	97	99	100
AB90201	295.7	5	19	51	82	95	99	100
AB90301	321.2	1	6	26	66	91	98	100
AB91001	384.1	0	2	7	26	60	86	97
AB91201	272.9	9	30	67	90	98	100	100
A100101	316.5	9	23	48	74	89	96	99
A100801	353.9	1	4	16	45	78	94	99
A100901	366.2	3	10	24	49	74	89	96
A101001	363.8	0	2	9	34	72	93	99
A110101	290.8	8	26	57	84	95	99	100
A110401	322.2	0	3	18	62	93	99	100
A110601	405.5	2	6	15	32	57	78	91
A110901	342.8	1	4	17	51	83	96	99
A111001	352.7	2	7	21	50	79	93	98
A120101	301.5	3	12	42	79	95	99	100
A120201	339.2	2	7	23	56	85	96	99
A121001	277.4	7	27	63	89	97	99	100
A121101	355.2	1	5	17	46	78	93	98
A130501	349.6	2	8	23	52	80	94	98
A131501	379.4	0	2	8	27	62	88	97
A131601	283.4	4	18	55	88	98	100	100
A131701	312.5	2	9	33	73	93	99	100
AB50304	421.9	0	1	4	13	37	69	89

Figure C.2 Test Characteristic Curves by Gender for JTPA: Prose Scale

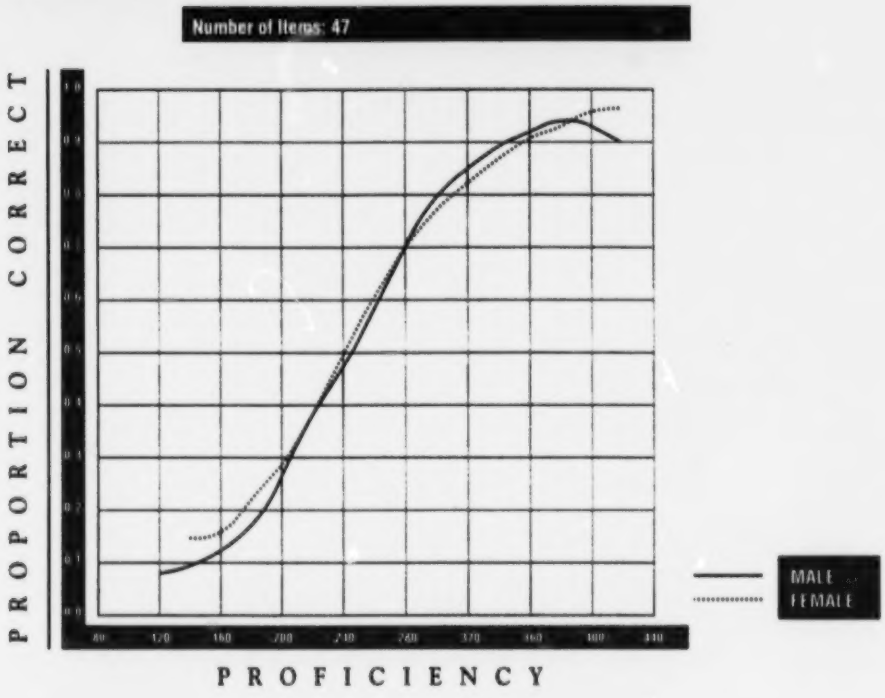


Figure C.3 Test Characteristic Curves by Gender for JTPA: Document Scale

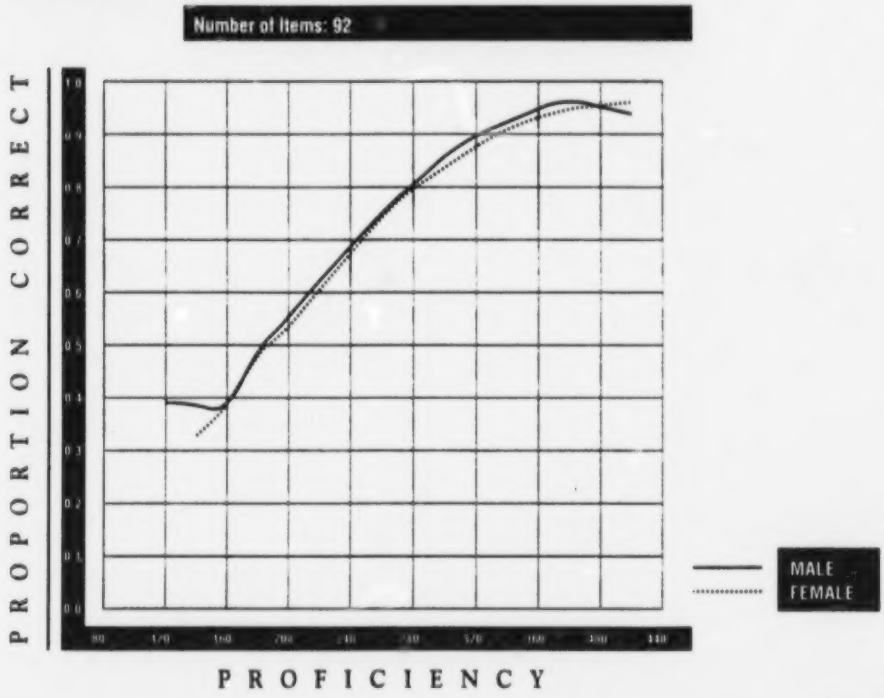


Figure C.4 **Test Characteristic Curves by Gender for JTPA: Quantitative Scale**

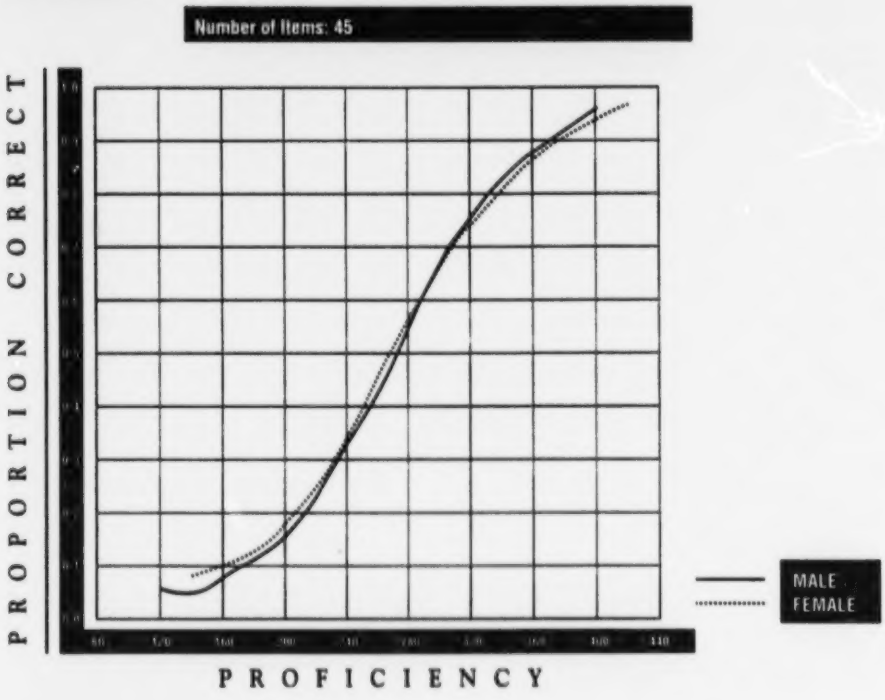


Figure C.5 **Test Characteristic Curves by Gender for ES/UI: Prose Scale**

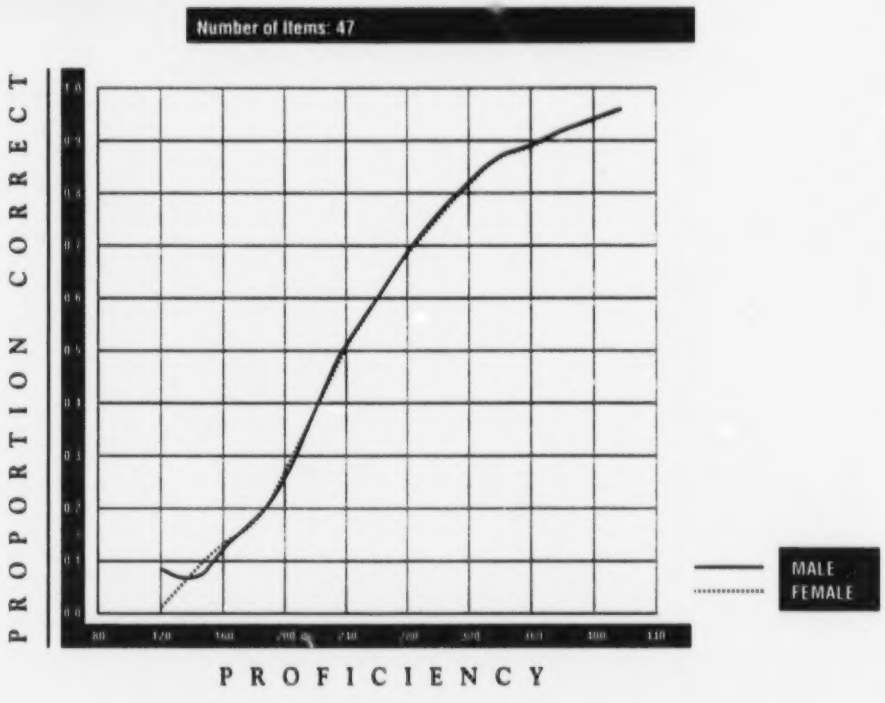


Figure C.6 Test Characteristic Curves by Gender for ES/UI: Document Scale

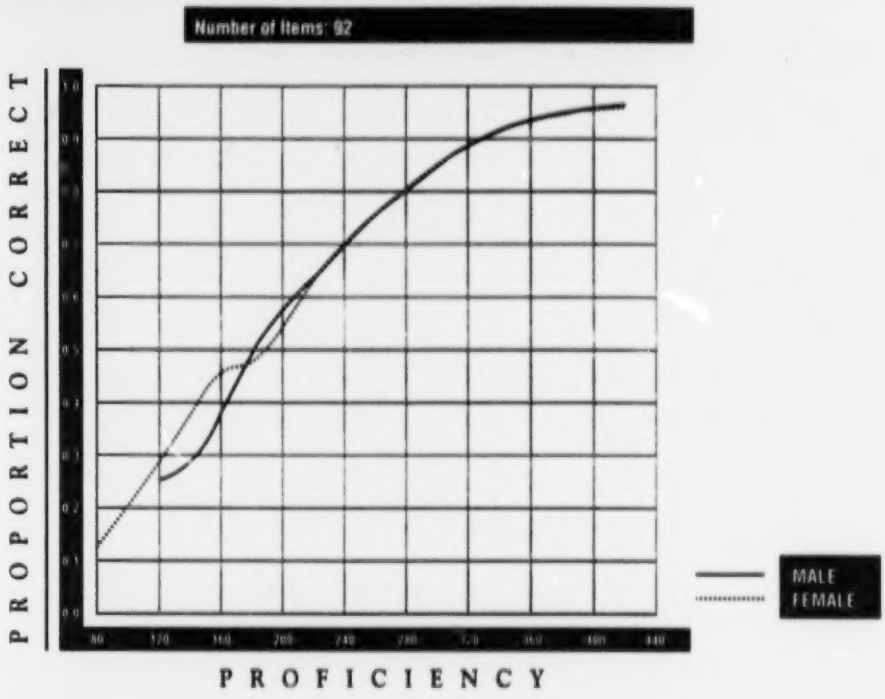


Figure C.7 Test Characteristic Curves by Gender for ES/UI: Quantitative Scale

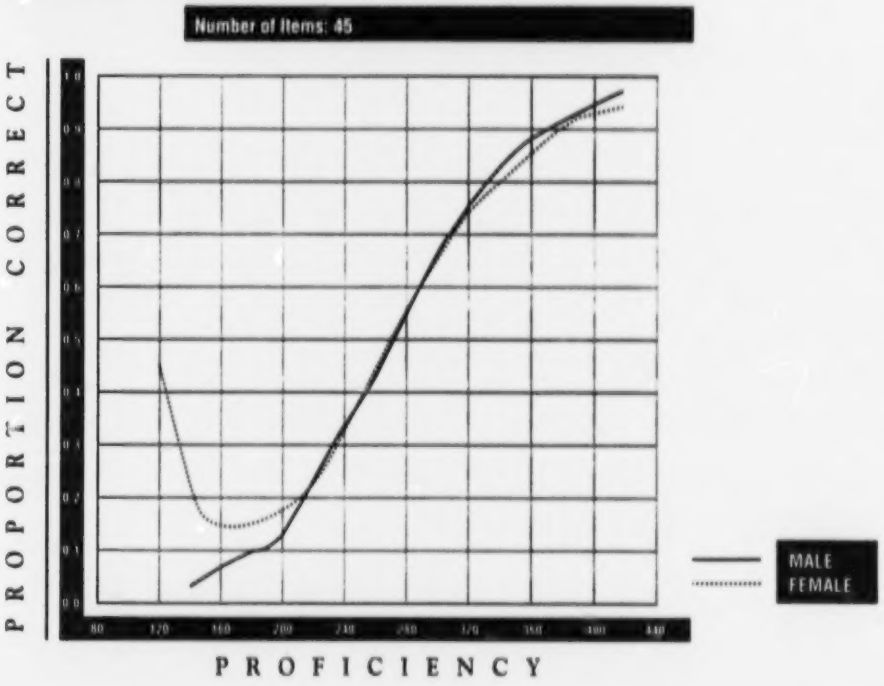


Figure C.8 Test Characteristic Curves by Race/Ethnicity for JTPA: Prose Scale

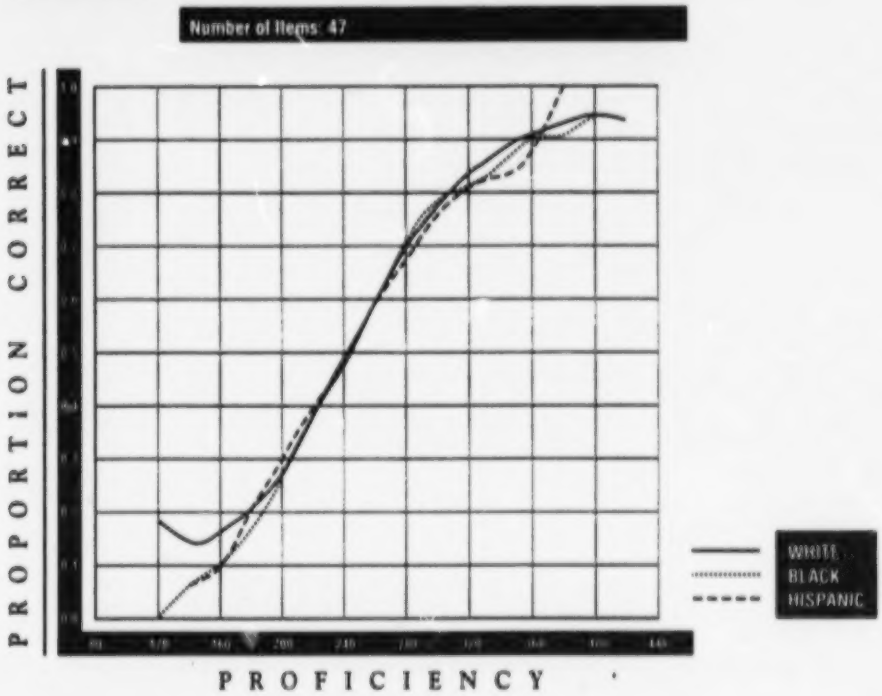


Figure C.9 Test Characteristic Curves by Race/Ethnicity for JTPA: Document Scale

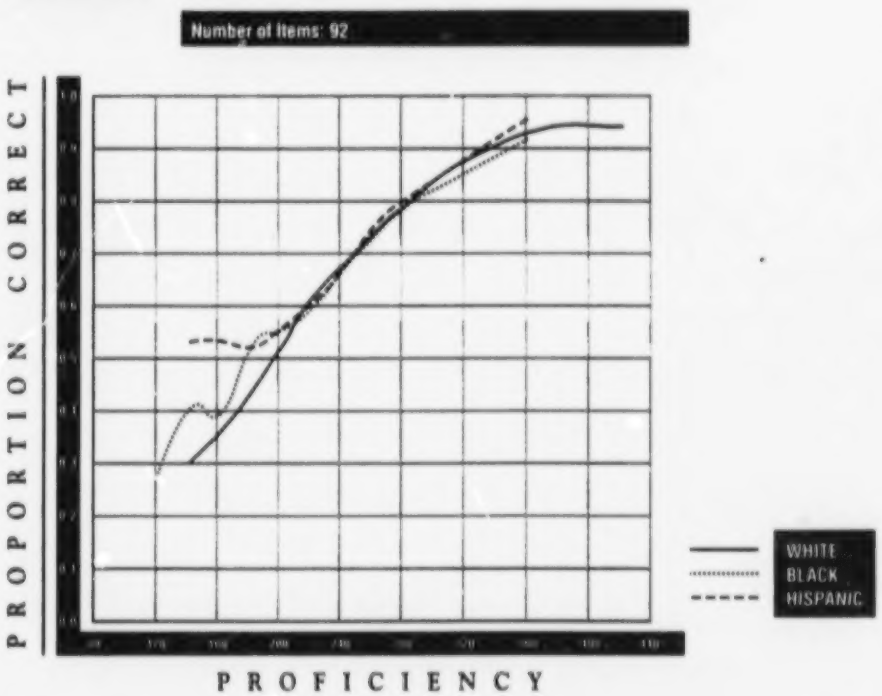


Figure C.10 Test Characteristic Curves by Race/Ethnicity for JTPA: Quantitative Scale

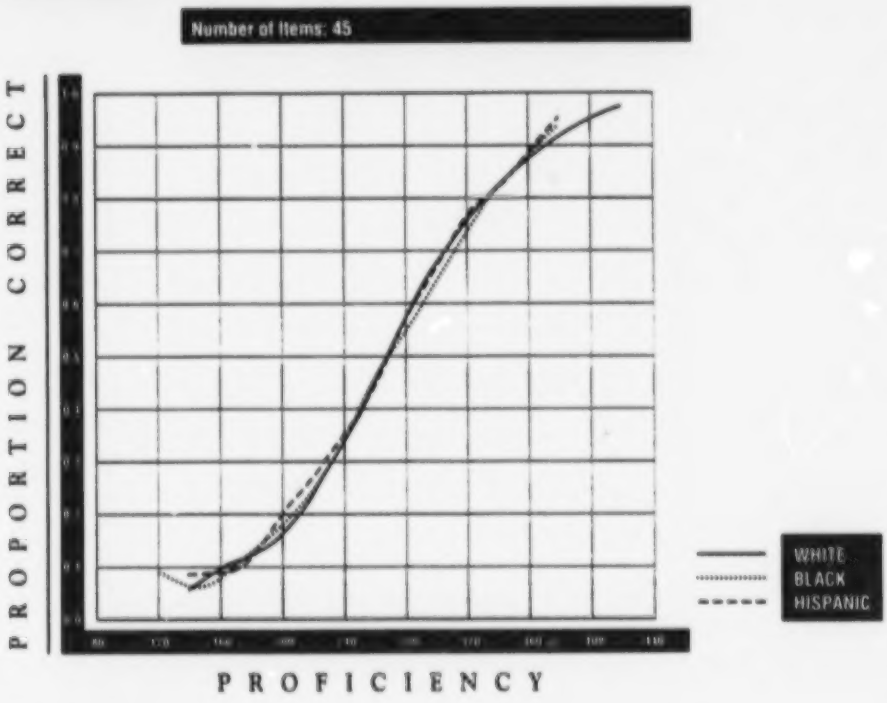


Figure C.11 Test Characteristic Curves by Race/Ethnicity for ES/UI: Prose Scale

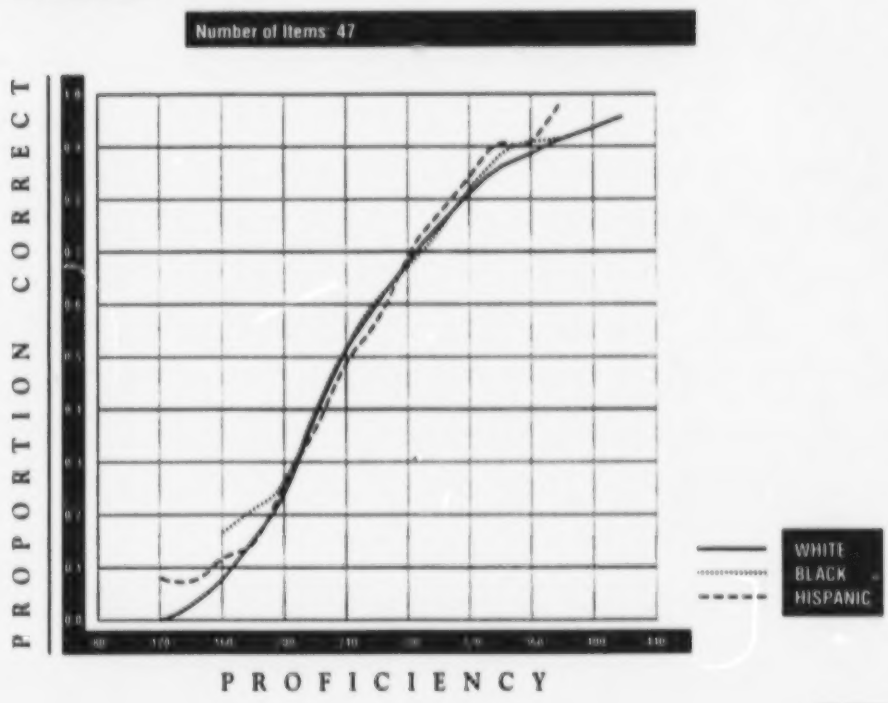


Figure C.12 Test Characteristic Curves by Race/Ethnicity for ES/UI: Document Scale

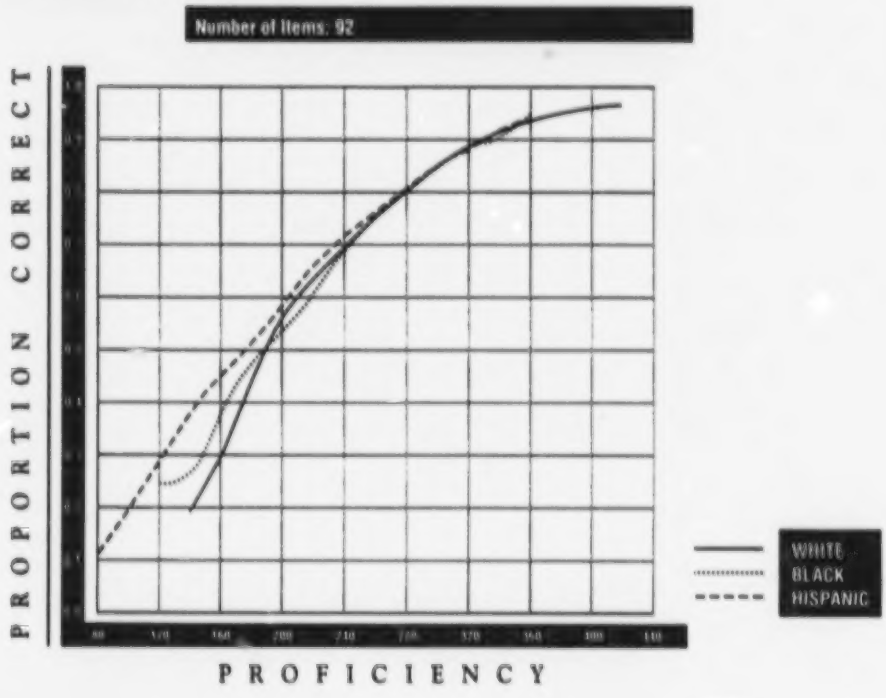
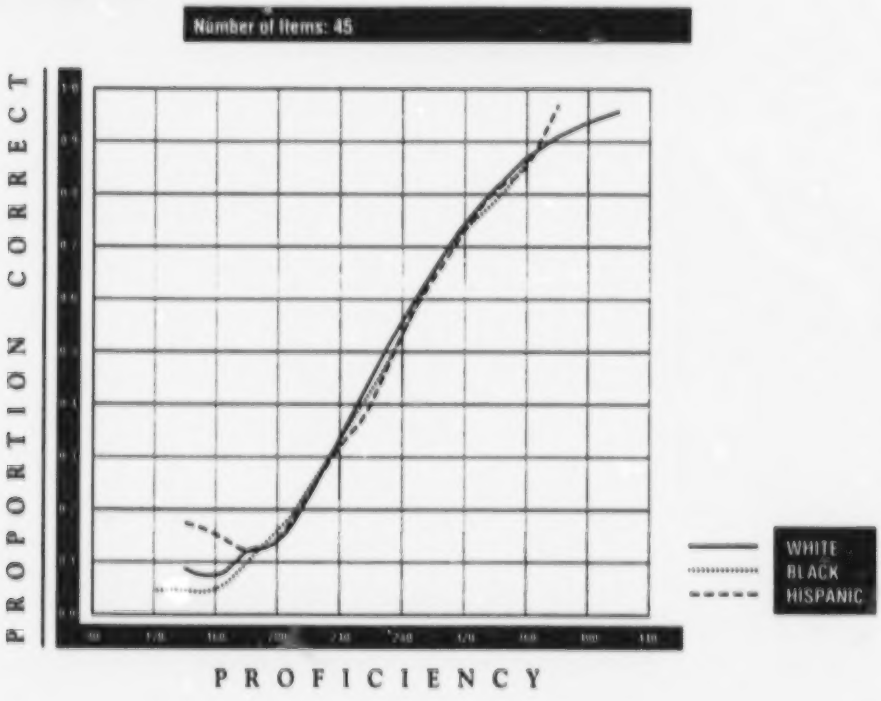


Figure C.13 Test Characteristic Curves by Race/Ethnicity for ES/UI: Quantitative Scale



APPENDIX D

OREGON
AND
MISSISSIPPI
DATA

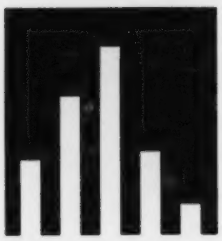


Table D.1 **Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Prose Literacy***

	n	Weighted N	· 225	226-275	276-325	326-375	· 376
TOTAL	1,993	1,807,235 (1%)	4.9 (0.6)	17.6 (1.0)	37.3 (1.1)	31.7 (1.2)	8.4 (0.7)
GENDER							
Male	1,064	898,972 (3%)	6.2 (0.9)	18.6 (1.4)	37.5 (1.5)	30.0 (1.5)	7.7 (0.9)
Female	929	908,263 (3%)	3.6 (0.7)	16.6 (1.3)	37.1 (2.0)	33.5 (1.8)	9.1 (1.3)
RACE/ETHNICITY							
White	1,845	1,661,068 (1%)	4.0 (0.5)	16.3 (1.0)	36.9 (1.1)	33.7 (1.2)	9.1 (0.8)
Black	16	15,278 (33%)**	10.0 (5.9)	36.2 (11.9)	36.3 (11.5)	17.6 (10.3)	0.0 (0.0)
Hispanic	57	54,535 (16%)	20.5 (7.1)	37.4 (6.3)	36.9 (7.4)	5.2 (2.7)	0.0 (0.0)
All Others	75	76,354 (13%)	11.9 (4.6)	28.3 (4.5)	46.6 (5.2)	12.0 (3.9)	1.3 (1.3)
EDUCATION							
Less than High School	29	27,970 (20%)	63.1 (8.9)	36.9 (8.9)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Some High School	208	203,042 (8%)	13.7 (2.4)	37.9 (3.7)	35.5 (3.5)	12.6 (2.7)	0.4 (0.4)
H.S. Dip. or GED	616	557,848 (4%)	4.9 (0.8)	22.8 (1.7)	42.5 (2.0)	26.9 (1.6)	3.0 (0.6)
Some Postsecondary	567	522,665 (4%)	2.4 (0.7)	15.0 (1.7)	43.5 (2.4)	32.5 (2.2)	6.6 (1.1)
College Degree	570	493,424 (5%)	0.5 (0.3)	5.2 (0.9)	27.7 (1.9)	46.3 (2.4)	20.3 (1.9)
Don't Know	3	2,286 (58%)**	27.4 (23.3)	0.0 (0.0)	72.6 (23.3)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	138	153,824 (10%)	6.7 (1.9)	21.8 (3.2)	42.8 (4.2)	24.8 (3.2)	3.9 (2.1)
21-25	183	211,361 (8%)	7.9 (2.1)	14.4 (2.5)	39.7 (3.8)	33.3 (4.0)	4.7 (1.6)
26-31	301	307,829 (6%)	2.7 (1.4)	14.6 (2.5)	39.3 (3.0)	31.6 (3.8)	11.7 (1.8)
32-45	778	628,205 (3%)	2.1 (0.5)	15.3 (1.5)	32.4 (1.8)	38.3 (1.8)	11.8 (1.1)
46+	593	506,017 (3%)	7.9 (1.0)	22.3 (1.8)	39.7 (1.9)	25.1 (1.7)	5.1 (1.1)
HOUSEHOLD INCOME							
Under $5,000	70	74,666 (13%)	17.4 (5.1)	29.1 (5.4)	33.3 (4.3)	20.2 (4.9)	0.0 (0.0)
$ 5,000-$ 9,999	142	143,372 (9%)	13.6 (3.7)	23.0 (3.5)	41.4 (5.3)	18.4 (3.2)	3.7 (2.2)
$10,000-$14,999	121	112,834 (10%)	3.1 (1.6)	25.4 (4.4)	43.5 (4.4)	23.8 (4.5)	4.2 (2.0)
$15,000-$19,999	169	155,738 (8%)	5.9 (1.7)	22.6 (3.4)	39.0 (4.0)	28.1 (4.0)	4.3 (1.6)
$20,000-$29,999	374	338,875 (6%)	4.5 (1.2)	15.8 (1.9)	38.3 (2.5)	33.2 (2.4)	8.2 (1.5)
$30,000-$39,999	371	329,503 (5%)	2.7 (1.0)	16.2 (1.9)	37.3 (1.9)	37.0 (2.7)	6.8 (1.3)
$40,000-$49,999	266	232,219 (6%)	1.6 (0.7)	12.2 (2.4)	39.2 (2.5)	32.2 (2.8)	14.7 (2.5)
$50,000 and Over	352	300,997 (6%)	0.5 (0.4)	11.0 (1.5)	30.6 (2.6)	42.5 (3.0)	15.3 (2.2)
Refused & Don't Know	119	110,766 (7%)	12.6 (2.8)	25.6 (4.1)	37.6 (4.3)	20.0 (4.7)	4.2 (1.8)
PERSONAL INCOME							
Under $5,000	423	422,033 (4%)	8.3 (1.6)	21.6 (2.2)	38.7 (2.1)	27.1 (2.5)	4.2 (0.9)
$ 5,000-$ 9,999	262	254,864 (7%)	6.1 (1.8)	18.7 (2.9)	45.9 (3.9)	24.7 (2.4)	4.6 (1.5)
$10,000-$14,999	348	318,398 (5%)	7.3 (1.5)	24.0 (2.4)	38.1 (3.1)	25.8 (2.3)	4.8 (1.6)
$15,000-$19,999	453	417,624 (5%)	6.3 (1.6)	21.2 (2.1)	38.9 (2.5)	28.4 (2.4)	5.2 (1.3)
$20,000-$29,999	518	449,268 (4%)	5.6 (1.0)	18.7 (1.8)	32.7 (2.1)	33.4 (2.3)	9.5 (1.4)
$30,000-$39,999	427	380,962 (5%)	2.0 (0.7)	11.5 (1.6)	39.2 (2.1)	36.5 (2.2)	10.8 (1.3)
$40,000-$49,999	250	208,594 (6%)	5.5 (1.6)	17.3 (2.4)	33.3 (2.7)	35.9 (3.6)	8.0 (2.0)
$50,000 and Over	326	290,918 (5%)	1.9 (0.8)	13.1 (1.5)	35.5 (2.6)	38.7 (2.6)	10.8 (2.2)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D.1 *(continued)*

Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Prose Literacy

	n	Weighted N	≤ 225	226-275	276-325	326-375	≥ 376
OCCUPATION							
Laborer	143	130,244 (9%)	9.3 (2.5)	32.6 (4.2)	39.6 (5.4)	15.3 (3.3)	3.1 (1.8)
Service	266	253,358 (7%)	7.0 (1.6)	24.5 (2.6)	39.2 (3.2)	26.2 (2.8)	3.2 (1.3)
Operative	186	160,410 (8%)	12.3 (2.6)	25.1 (3.2)	35.2 (3.2)	20.9 (3.1)	6.5 (2.2)
Clerical	225	212,976 (7%)	2.1 (0.9)	10.8 (1.9)	41.1 (3.2)	37.6 (3.1)	8.5 (1.7)
Craft	149	129,174 (10%)	7.7 (2.6)	23.2 (3.3)	31.4 (3.6)	36.3 (4.6)	1.4 (1.0)
Sales	233	214,246 (6%)	2.5 (1.1)	12.1 (1.8)	39.9 (3.3)	37.0 (3.0)	8.5 (1.7)
Technical	93	81,897 (8%)	2.2 (1.6)	10.7 (3.4)	32.6 (5.6)	40.9 (6.3)	13.6 (3.3)
Professional	242	208,594 (7%)	3.3 (1.2)	7.4 (1.8)	32.1 (2.6)	38.1 (2.8)	19.2 (2.6)
Manager	309	264,771 (5%)	0.9 (0.5)	15.0 (2.3)	33.2 (3.1)	37.3 (2.5)	13.5 (1.9)
WEEKS OF EMPLOYMENT							
0-13 Weeks	468	442,500 (4%)	8.1 (1.3)	21.9 (1.9)	40.0 (2.5)	25.4 (2.5)	4.6 (1.0)
14-39 Weeks	294	281,528 (6%)	5.7 (1.7)	22.1 (2.4)	39.1 (2.9)	28.2 (2.7)	4.9 (1.4)
40+ Weeks	1,219	1,073,590 (2%)	3.3 (0.5)	14.7 (1.1)	35.7 (1.3)	35.5 (1.4)	10.9 (1.1)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	530	508,729 (4%)	9.7 (1.5)	22.0 (2.3)	38.8 (2.2)	25.5 (2.2)	4.1 (0.6)
AFDC	95	101,421 (10%)	11.7 (4.2)	31.0 (4.9)	35.6 (5.1)	20.5 (4.1)	1.3 (0.9)
Gen. Assis., Home Relief	33	32,706 (16%)	11.7 (6.3)	41.4 (9.0)	21.9 (9.9)	20.5 (7.3)	4.5 (4.5)
Suppl. Security Income	90	82,804 (9%)	19.3 (4.7)	27.3 (4.3)	34.9 (5.9)	17.6 (3.8)	0.9 (0.9)
Food Stamps	187	191,384 (8%)	14.9 (3.1)	28.2 (4.2)	32.0 (3.6)	22.7 (3.1)	2.1 (1.1)
Unemployment Comp.	194	183,935 (8%)	7.6 (2.0)	20.7 (3.4)	41.4 (3.7)	23.3 (3.8)	7.0 (1.6)
Other	168	157,362 (9%)	9.3 (2.7)	18.9 (3.3)	42.4 (3.7)	25.2 (3.1)	4.2 (1.1)
HOURS WORKED LAST WEEK							
1-20 Hours	225	213,021 (7%)	3.5 (1.4)	16.7 (2.4)	40.2 (2.8)	30.9 (3.2)	8.7 (2.1)
21-34 Hours	157	146,457 (8%)	4.5 (1.8)	18.2 (3.0)	36.2 (3.6)	34.8 (4.0)	6.3 (1.8)
35-40 Hours	560	498,886 (4%)	3.9 (0.8)	15.2 (1.4)	38.4 (1.8)	31.2 (2.0)	11.4 (1.5)
41+ Hours	468	395,850 (4%)	3.0 (0.8)	12.9 (1.8)	34.2 (2.0)	38.6 (2.2)	11.3 (1.5)
WAGES PER HOUR							
Less than $ 3.85	42	38,141 (16%)	5.1 (3.5)	15.2 (5.7)	60.3 (6.8)	17.1 (6.1)	2.2 (2.2)
$ 3.86-$ 4.99	115	119,702 (9%)	8.5 (3.2)	24.3 (4.6)	38.4 (3.8)	26.0 (3.8)	2.8 (1.7)
$ 5.00-$ 6.99	220	208,013 (6%)	2.8 (1.0)	19.1 (2.8)	38.7 (3.3)	32.4 (3.2)	7.0 (1.8)
$ 7.00-$ 9.99	274	241,563 (6%)	5.7 (1.7)	15.4 (2.3)	38.4 (3.0)	32.6 (3.1)	7.9 (1.7)
$10.00 or More	705	601,650 (3%)	2.1 (0.6)	11.1 (0.9)	34.4 (1.6)	37.7 (2.1)	14.7 (1.6)

Table D.2 Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Document Literacy*

	n	Weighted N	< 225	226-275	276-325	326-375	> 376
TOTAL	1,993	1,807,235 (1%)	5.0 (0.5)	19.3 (1.0)	41.3 (1.1)	28.4 (1.1)	6.0 (0.5)
GENDER							
Male	1,064	898,972 (3%)	6.0 (0.8)	19.6 (1.2)	38.3 (1.6)	29.3 (1.6)	6.8 (0.9)
Female	929	908,263 (3%)	4.0 (0.7)	19.0 (1.4)	44.2 (1.5)	27.5 (1.3)	5.3 (0.6)
RACE/ETHNICITY							
White	1,845	1,661,068 (1%)	4.2 (0.5)	17.8 (1.0)	42.0 (1.2)	29.5 (1.1)	6.4 (0.5)
Black	16	15,278 (33%)**	5.5 (4.0)	32.8 (11.6)	32.8 (13.1)	20.1 (7.5)	8.8 (9.2)
Hispanic	57	54,535 (16%)	23.0 (5.5)	38.5 (5.5)	20.9 (5.3)	15.8 (5.0)	1.8 (1.8)
All Others	75	76,354 (13%)	8.8 (3.6)	34.8 (6.0)	40.5 (5.9)	15.9 (4.7)	0.0 (0.0)
EDUCATION							
Less than High School	29	27,970 (20%)	56.1 (10.2)	35.5 (9.5)	8.4 (5.8)	0.0 (0.0)	0.0 (0.0)
Some High School	208	203,042 (8%)	12.2 (2.4)	38.5 (3.5)	39.3 (3.6)	10.1 (2.4)	0.0 (0.0)
H.S. Dip. or GED	616	557,848 (4%)	6.1 (0.9)	23.9 (1.8)	46.3 (1.9)	21.2 (1.5)	2.5 (0.6)
Some Postsecondary	567	522,665 (4%)	2.7 (0.7)	17.8 (1.8)	48.4 (1.9)	27.3 (1.8)	3.8 (0.8)
College Degree	570	493,424 (5%)	0.2 (0.2)	6.8 (1.0)	30.7 (1.7)	47.1 (2.1)	15.1 (1.7)
Don't Know	3	2,286 (58%)**	27.4 (23.3)	36.1 (27.9)	36.5 (38.6)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	138	153,824 (10%)	7.0 (2.1)	23.2 (3.6)	45.1 (4.3)	23.3 (3.5)	1.4 (1.0)
21-25	183	211,361 (8%)	5.8 (2.1)	16.0 (2.7)	41.1 (3.7)	31.2 (3.3)	5.8 (1.7)
26-31	301	307,829 (6%)	2.4 (0.9)	17.6 (2.5)	40.5 (2.5)	30.3 (2.3)	9.3 (1.6)
32-45	778	628,205 (3%)	2.8 (0.6)	13.4 (1.3)	39.3 (1.7)	34.9 (1.7)	9.5 (0.9)
46+	593	506,017 (3%)	8.3 (1.1)	27.8 (1.9)	43.1 (1.8)	19.6 (1.6)	1.2 (0.5)
HOUSEHOLD INCOME							
Under $5,000	70	74,666 (13%)	16.2 (4.9)	26.3 (5.5)	45.8 (5.8)	10.6 (3.2)	1.0 (1.0)
$ 5,000-$ 9,999	142	143,372 (9%)	11.4 (3.0)	33.6 (4.8)	39.2 (5.2)	15.2 (2.6)	0.6 (0.6)
$10,000-$14,999	121	112,834 (10%)	4.4 (1.6)	21.4 (3.8)	41.9 (5.0)	29.7 (5.2)	2.5 (1.5)
$15,000-$19,999	169	155,738 (8%)	7.9 (1.6)	26.2 (4.2)	40.1 (3.4)	24.7 (3.2)	1.0 (0.7)
$20,000-$29,999	374	338,875 (6%)	5.9 (1.2)	19.0 (2.1)	41.4 (2.6)	28.3 (2.5)	5.4 (1.2)
$30,000-$39,999	371	329,503 (5%)	3.0 (0.8)	17.2 (2.2)	42.5 (2.7)	28.5 (2.9)	8.8 (1.3)
$40,000-$49,999	266	232,219 (6%)	0.6 (0.5)	14.1 (1.7)	40.4 (3.2)	35.9 (2.5)	9.0 (1.9)
$50,000 and Over	352	300,997 (6%)	1.0 (0.5)	10.6 (1.8)	37.6 (2.4)	41.3 (2.9)	9.5 (1.5)
Refused & Don't Know	119	110,766 (7%)	9.1 (2.8)	24.6 (3.5)	47.5 (4.2)	13.4 (2.9)	5.4 (2.3)
PERSONAL INCOME							
Under $5,000	423	422,033 (4%)	7.3 (1.2)	20.5 (2.1)	46.8 (2.7)	22.1 (2.3)	3.2 (0.7)
$ 5,000-$ 9,999	262	254,864 (7%)	5.6 (1.5)	28.9 (3.1)	37.2 (3.2)	24.8 (2.1)	3.5 (1.0)
$10,000-$14,999	348	318,398 (5%)	8.3 (1.3)	23.7 (2.1)	41.1 (2.4)	24.1 (2.8)	2.8 (0.8)
$15,000-$19,999	453	417,624 (5%)	5.9 (1.5)	28.5 (3.0)	41.2 (2.3)	20.7 (2.1)	3.7 (0.8)
$20,000-$29,999	518	449,268 (4%)	6.5 (1.1)	20.0 (1.5)	40.0 (2.0)	27.3 (2.1)	6.3 (1.2)
$30,000-$39,999	427	380,962 (5%)	1.4 (0.5)	12.7 (1.8)	44.1 (2.5)	33.4 (1.8)	8.5 (1.1)
$40,000-$49,999	250	208,594 (6%)	6.5 (1.6)	16.3 (2.8)	40.5 (2.9)	28.6 (2.7)	8.1 (2.0)
$50,000 and Over	326	290,918 (5%)	2.2 (0.8)	16.8 (2.4)	39.1 (2.8)	35.1 (2.8)	6.9 (1.4)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D.2 (continued) Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Document Literacy

	n	Weighted N	- 225	226-275	276-325	326-375	- 376
OCCUPATION							
Laborer	143	130,244 (9%)	13.4 (2.6)	27.0 (3.5)	41.6 (3.4)	16.3 (3.6)	1.6 (0.9)
Service	266	253,358 (7%)	7.2 (1.8)	31.1 (3.7)	41.1 (3.1)	18.4 (2.6)	2.2 (0.9)
Operative	186	160,410 (8%)	11.2 (2.4)	26.6 (2.6)	38.6 (2.8)	18.8 (3.0)	4.8 (1.7)
Clerical	225	212,976 (7%)	1.2 (0.7)	14.4 (2.6)	47.0 (2.9)	30.6 (2.9)	6.8 (1.6)
Craft	149	129,174 (10%)	10.0 (2.5)	21.5 (3.8)	42.0 (4.0)	22.9 (3.6)	3.7 (1.5)
Sales	233	214,246 (6%)	1.9 (1.0)	19.6 (2.7)	44.3 (3.7)	28.6 (3.0)	5.7 (1.6)
Technical	93	81,897 (8%)	0.0 (0.0)	12.1 (4.0)	44.4 (6.5)	33.3 (5.0)	10.3 (5.3)
Professional	242	208,594 (7%)	2.2 (0.9)	7.6 (1.6)	38.5 (3.4)	41.5 (2.9)	10.3 (1.9)
Manager	309	264,771 (5%)	0.9 (0.5)	13.9 (1.8)	37.5 (2.1)	36.5 (2.7)	11.2 (2.1)
WEEKS OF EMPLOYMENT							
0-13 Weeks	468	442,500 (4%)	9.0 (1.3)	24.9 (1.9)	40.4 (2.4)	22.2 (2.1)	3.6 (0.9)
14-39 Weeks	294	281,528 (6%)	6.6 (1.3)	17.6 (2.4)	43.9 (2.8)	28.5 (2.7)	3.5 (1.0)
40+ Weeks	1,219	1,073,590 (2%)	3.0 (0.5)	17.2 (1.3)	40.9 (1.5)	31.2 (1.4)	7.7 (0.8)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	530	508,729 (4%)	9.4 (1.2)	24.4 (2.0)	41.1 (2.1)	22.1 (1.8)	3.1 (0.8)
AFDC	95	101,421 (10%)	10.6 (3.4)	28.9 (5.7)	42.3 (5.7)	16.0 (4.0)	2.1 (1.2)
Gen. Assis., Home Relief	33	32,706 (16%)	28.8 (7.0)	14.9 (6.0)	50.2 (8.4)	4.1 (4.2)	2.0 (2.0)
Suppl. Security Income	90	82,804 (9%)	19.5 (4.4)	32.5 (5.2)	31.3 (5.4)	11.3 (3.0)	5.3 (2.4)
Food Stamps	187	191,384 (8%)	13.7 (2.4)	30.4 (3.8)	36.5 (4.1)	17.8 (3.2)	1.6 (1.0)
Unemployment Comp.	194	183,935 (8%)	5.9 (1.5)	25.9 (3.8)	42.6 (3.8)	22.4 (3.0)	3.3 (1.0)
Other	168	157,362 (9%)	5.2 (1.7)	20.5 (3.3)	41.7 (3.9)	29.8 (3.5)	2.8 (1.3)
HOURS WORKED LAST WEEK							
1-20 Hours	225	213,021 (7%)	4.8 (1.6)	14.5 (2.7)	46.1 (4.5)	27.7 (3.5)	6.9 (1.6)
21-34 Hours	157	146,457 (8%)	6.4 (2.0)	14.2 (2.6)	41.8 (4.4)	29.4 (3.6)	8.2 (2.2)
35-40 Hours	560	498,886 (4%)	2.2 (0.6)	19.1 (1.9)	40.5 (1.8)	32.5 (2.0)	5.8 (1.1)
41+ Hours	468	395,850 (4%)	3.1 (0.8)	16.8 (1.8)	38.9 (2.6)	32.3 (2.3)	8.9 (1.4)
WAGES PER HOUR							
Less than $ 3.85	42	38,141 (16%)	3.9 (2.8)	34.5 (8.9)	46.3 (8.5)	9.5 (4.3)	5.7 (4.0)
$ 3.86-$ 4.99	115	119,702 (9%)	6.3 (2.2)	24.0 (4.6)	43.7 (4.8)	24.6 (4.3)	1.3 (0.9)
$ 5.00-$ 6.99	220	208,013 (6%)	6.5 (1.7)	18.0 (2.6)	42.9 (3.2)	27.7 (3.3)	4.8 (1.5)
$ 7.00-$ 9.99	274	241,563 (6%)	2.2 (1.0)	20.3 (2.5)	43.7 (3.1)	28.3 (3.0)	5.6 (1.5)
$10.00 or More	705	601,650 (3%)	2.3 (0.6)	13.2 (1.3)	37.7 (1.5)	36.9 (1.9)	9.9 (1.0)

Table D.3 Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Quantitative Literacy*

	n	Weighted N	≤ 225	226-275	276-325	326-375	≥ 376
TOTAL	1,993	1,807,235 (1%)	3.3 (0.4)	17.6 (0.9)	40.8 (1.0)	31.0 (0.9)	7.2 (0.5)
GENDER							
Male	1,064	898,972 (3%)	4.1 (0.6)	17.3 (1.1)	40.4 (1.3)	30.9 (1.3)	7.4 (0.8)
Female	929	908,263 (3%)	2.6 (0.5)	18.0 (1.2)	41.3 (1.6)	31.2 (1.4)	6.9 (0.8)
RACE/ETHNICITY							
White	1,845	1,661,068 (1%)	2.8 (0.4)	16.2 (0.8)	40.8 (1.0)	32.4 (0.9)	7.7 (0.6)
Black	16	15,278 (33%)**	10.9 (7.9)	26.1 (13.6)	46.3 (15.1)	16.7 (8.1)	0.0 (0.0)
Hispanic	57	54,535 (16%)	13.2 (4.4)	33.8 (7.5)	39.3 (6.7)	12.3 (4.4)	1.4 (1.5)
All Others	75	76,354 (13%)	6.0 (2.6)	36.6 (5.4)	40.9 (6.5)	16.5 (3.9)	0.0 (0.0)
EDUCATION							
Less than High School	29	27,970 (20%)	34.4 (8.2)	55.6 (10.1)	10.0 (5.5)	0.0 (0.0)	0.0 (0.0)
Some High School	208	203,042 (8%)	10.4 (2.1)	33.3 (2.9)	42.0 (3.5)	13.9 (2.7)	0.4 (0.4)
H.S. Dip. or GED	616	557,848 (4%)	3.0 (0.8)	22.6 (2.0)	44.4 (2.0)	25.7 (1.8)	4.3 (0.9)
Some Postsecondary	567	522,665 (4%)	1.6 (0.5)	16.0 (1.5)	44.9 (1.8)	32.9 (1.9)	4.7 (0.9)
College Degree	570	493,424 (5%)	0.9 (0.5)	5.2 (0.9)	33.6 (2.0)	44.1 (2.1)	16.2 (1.7)
Don't Know	3	2,286 (58%)**	0.0 (0.0)	27.4 (23.3)	72.6 (23.3)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	138	153,824 (10%)	3.8 (1.5)	28.0 (4.5)	37.8 (4.3)	25.5 (4.2)	4.9 (2.0)
21-25	183	211,361 (8%)	4.5 (1.8)	20.5 (2.9)	49.0 (3.1)	22.4 (3.4)	3.6 (1.0)
26-31	301	307,829 (6%)	2.6 (1.0)	19.5 (2.7)	40.3 (2.8)	28.2 (3.0)	9.4 (1.5)
32-45	778	628,205 (3%)	1.6 (0.3)	10.8 (1.1)	40.3 (1.7)	37.3 (1.9)	10.1 (0.9)
46+	593	506,017 (3%)	5.4 (0.9)	20.8 (1.6)	39.3 (1.7)	30.3 (1.7)	4.3 (0.8)
HOUSEHOLD INCOME							
Under $5,000	70	74,666 (13%)	11.5 (4.3)	37.1 (7.4)	44.5 (6.7)	5.4 (2.4)	1.5 (1.5)
$ 5,000-$ 9,999	142	143,372 (9%)	9.3 (2.1)	29.4 (4.2)	40.6 (4.4)	19.0 (2.9)	1.7 (1.3)
$10,000-$14,999	121	112,834 (10%)	3.7 (1.4)	23.1 (4.1)	43.5 (4.9)	24.9 (4.7)	4.8 (2.1)
$15,000-$19,999	169	155,738 (8%)	4.9 (1.8)	26.0 (3.6)	39.0 (3.6)	26.2 (3.7)	3.9 (1.5)
$20,000-$29,999	374	338,875 (6%)	2.7 (1.0)	15.3 (1.9)	44.9 (3.0)	30.4 (2.5)	6.7 (1.4)
$30,000-$39,999	371	329,503 (5%)	1.4 (0.6)	14.5 (2.1)	42.9 (2.7)	32.8 (2.6)	8.4 (1.5)
$40,000-$49,999	266	232,219 (6%)	1.6 (0.8)	10.3 (1.9)	35.9 (3.3)	40.6 (3.1)	11.6 (1.9)
$50,000 and Over	352	300,997 (6%)	0.0 (0.0)	11.1 (1.4)	39.8 (2.6)	38.7 (2.4)	10.4 (1.6)
Refused & Don't Know	119	110,766 (7%)	7.6 (2.2)	19.5 (3.7)	33.7 (3.8)	34.1 (3.9)	5.0 (1.5)
PERSONAL INCOME							
Under $5,000	423	422,033 (4%)	5.2 (1.0)	25.4 (2.4)	42.3 (2.5)	22.5 (1.9)	4.6 (1.0)
$ 5,000-$ 9,999	262	254,864 (7%)	5.3 (1.4)	20.9 (2.8)	45.3 (3.0)	25.1 (2.4)	3.3 (1.0)
$10,000-$14,999	348	318,398 (5%)	5.2 (1.3)	25.2 (2.4)	38.4 (2.7)	25.0 (2.1)	6.2 (1.4)
$15,000-$19,999	453	417,624 (5%)	5.1 (1.0)	22.4 (2.1)	40.4 (1.8)	28.1 (2.0)	4.0 (0.9)
$20,000-$29,999	518	449,268 (4%)	4.1 (0.8)	14.4 (1.9)	43.0 (2.2)	31.8 (2.0)	6.8 (1.0)
$30,000-$39,999	427	380,962 (5%)	1.0 (0.5)	10.1 (1.7)	40.8 (2.0)	38.3 (2.3)	9.8 (1.4)
$40,000-$49,999	250	208,594 (6%)	1.8 (0.8)	16.6 (2.7)	38.8 (2.9)	34.9 (3.3)	7.9 (1.4)
$50,000 and Over	326	290,918 (5%)	0.6 (0.4)	13.9 (1.7)	40.6 (3.0)	36.0 (2.6)	8.9 (1.7)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D.3 (continued) Oregon: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Quantitative Literacy

	n	Weighted N	≤ 225	226-275	276-325	326-375	≥ 376
OCCUPATION							
Laborer	143	130,244 (9%)	9.1 (2.6)	31.3 (4.5)	31.9 (3.7)	24.8 (3.1)	3.0 (1.5)
Service	266	253,358 (7%)	6.9 (1.6)	26.1 (2.9)	41.3 (2.5)	23.6 (2.5)	2.2 (0.9)
Operative	186	160,410 (8%)	8.0 (2.1)	21.2 (3.6)	43.6 (3.1)	22.5 (2.6)	4.7 (1.5)
Clerical	225	212,976 (7%)	1.5 (0.8)	12.1 (2.4)	44.3 (2.9)	35.1 (3.0)	7.1 (1.7)
Craft	149	129,174 (10%)	2.2 (1.1)	22.5 (3.8)	39.7 (3.4)	32.6 (3.8)	3.0 (1.3)
Sales	233	214,246 (6%)	0.8 (0.5)	14.9 (1.8)	43.7 (3.7)	31.9 (3.1)	8.7 (1.9)
Technical	93	81,897 (8%)	2.8 (2.0)	9.2 (3.0)	39.8 (5.7)	34.6 (5.7)	13.6 (3.3)
Professional	242	208,594 (7%)	0.9 (0.6)	5.2 (1.3)	34.3 (2.8)	46.9 (3.8)	12.7 (2.5)
Manager	309	264,771 (5%)	0.6 (0.4)	11.0 (1.6)	45.4 (3.0)	32.4 (2.8)	10.5 (1.8)
WEEKS OF EMPLOYMENT							
0-13 Weeks	468	442,500 (4%)	6.3 (1.1)	25.6 (2.3)	39.8 (2.4)	24.6 (2.1)	3.7 (0.9)
14-39 Weeks	294	281,528 (6%)	3.4 (1.1)	21.1 (2.7)	38.9 (2.9)	28.0 (2.7)	8.5 (1.8)
40+ Weeks	1,219	1,073,590 (2%)	2.1 (0.4)	13.2 (1.0)	41.9 (1.1)	34.6 (1.0)	8.3 (0.7)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	530	508,729 (4%)	6.7 (1.1)	27.3 (2.0)	40.9 (2.5)	22.0 (2.0)	3.1 (0.8)
AFDC	95	101,421 (10%)	5.4 (2.5)	36.3 (3.7)	43.9 (5.1)	13.7 (3.7)	0.7 (0.7)
Gen. Assis., Home Relief	33	32,706 (16%)	7.4 (4.2)	34.8 (11.4)	46.6 (12.0)	11.3 (5.8)	0.0 (0.0)
Suppl. Security Income	90	82,804 (9%)	14.4 (3.7)	39.6 (4.4)	21.0 (4.3)	22.5 (4.2)	2.6 (1.8)
Food Stamps	187	191,384 (8%)	11.7 (2.3)	35.5 (3.2)	38.3 (3.8)	12.6 (2.1)	2.0 (1.1)
Unemployment Comp.	194	183,935 (8%)	5.5 (1.9)	22.5 (2.7)	46.0 (3.7)	21.8 (2.7)	4.1 (1.5)
Other	168	157,362 (9%)	3.3 (1.5)	26.0 (3.8)	39.4 (4.1)	27.9 (4.4)	3.3 (1.4)
HOURS WORKED LAST WEEK							
1-20 Hours	225	213,021 (7%)	2.1 (1.0)	18.6 (3.2)	43.0 (3.9)	32.0 (4.0)	4.3 (1.4)
21-34 Hours	157	146,457 (8%)	2.4 (1.3)	14.5 (3.4)	36.9 (3.7)	34.3 (3.7)	11.9 (2.3)
35-40 Hours	560	498,886 (4%)	2.0 (0.5)	13.9 (1.8)	43.2 (1.7)	33.4 (1.6)	7.4 (1.1)
41+ Hours	468	395,850 (4%)	1.6 (0.7)	13.4 (1.8)	39.8 (2.3)	34.9 (2.4)	10.3 (1.2)
WAGES PER HOUR							
Less than $ 3.85	42	38,141 (16%)	2.7 (2.7)	24.6 (7.0)	38.5 (9.0)	28.4 (7.3)	5.7 (4.0)
$ 3.86-$ 4.99	115	119,702 (9%)	1.1 (1.1)	29.2 (5.7)	45.9 (5.7)	21.2 (4.8)	2.7 (1.2)
$ 5.00-$ 6.99	220	208,013 (6%)	3.5 (1.2)	18.4 (2.4)	42.0 (3.7)	30.3 (3.3)	5.7 (1.7)
$ 7.00-$ 9.99	274	241,563 (6%)	2.1 (0.7)	16.5 (2.7)	43.9 (3.2)	29.0 (2.9)	8.5 (1.5)
$10.00 or More	705	601,650 (3%)	1.5 (0.5)	9.1 (1.1)	40.4 (1.8)	38.5 (2.0)	10.5 (0.9)

Table D.4 Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Prose Literacy*

	n	Weighted N	225	226-275	276-325	326-375	376
TOTAL	1,804	1,977,152 (1%)	30.2 (1.2)	27.9 (1.1)	26.7 (1.1)	12.6 (0.8)	2.6 (0.4)
GENDER							
Male	761	940,038 (2%)	31.0 (1.6)	28.5 (1.5)	26.6 (1.6)	11.8 (1.0)	2.2 (0.5)
Female	1,043	1,037,114 (1%)	29.5 (1.9)	27.4 (1.5)	26.7 (1.5)	13.4 (1.2)	2.9 (0.6)
RACE/ETHNICITY							
White	1,300	1,312,910 (3%)	20.0 (1.1)	26.0 (1.2)	32.7 (1.2)	17.4 (1.0)	3.8 (0.6)
Black	473	631,432 (6%)	51.7 (2.3)	31.1 (2.4)	14.5 (1.6)	2.6 (0.8)	0.0 (0.0)
Hispanic	20	20,664 (25%)**	10.7 (7.1)	49.9 (11.9)	23.4 (11.2)	16.0 (8.8)	0.0 (0.0)
All Others	11	12,146 (33%)**	45.5 (13.6)	36.4 (13.0)	9.1 (8.1)	9.1 (9.5)	0.0 (0.0)
EDUCATION							
Less than High School	208	254,780 (6%)	79.2 (2.8)	15.8 (2.5)	3.3 (1.2)	1.7 (0.8)	0.0 (0.0)
Some High School	305	331,849 (7%)	52.7 (2.8)	29.2 (2.9)	15.4 (2.0)	2.6 (0.9)	0.0 (0.0)
H.S. Dip. or GED	580	635,128 (3%)	23.9 (1.9)	36.3 (2.4)	30.6 (1.8)	8.6 (1.0)	0.6 (0.3)
Some Postsecondary	345	370,923 (6%)	11.1 (1.5)	31.1 (2.3)	36.3 (2.5)	19.3 (1.8)	2.2 (0.9)
College Degree	362	379,838 (6%)	6.7 (1.1)	17.7 (2.3)	36.2 (2.5)	29.3 (2.4)	10.1 (1.5)
Don't Know	4	4,634 (62%)**	49.5 (21.9)	26.5 (11.5)	23.9 (10.4)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	140	184,903 (9%)	24.7 (3.5)	37.8 (4.7)	26.6 (3.8)	10.1 (2.4)	0.7 (0.7)
21-25	173	209,935 (7%)	20.8 (2.6)	33.6 (3.5)	29.8 (3.3)	13.4 (2.7)	2.3 (0.8)
26-31	238	250,960 (7%)	20.8 (2.4)	30.6 (2.9)	35.5 (3.1)	11.2 (1.4)	1.9 (0.9)
32-45	477	537,392 (3%)	17.3 (2.0)	22.6 (2.1)	31.7 (2.1)	22.2 (1.9)	6.1 (1.2)
46+	776	793,963 (3%)	45.7 (2.1)	26.8 (1.6)	19.7 (1.3)	7.0 (0.8)	0.8 (0.4)
HOUSEHOLD INCOME							
Under $5,000	156	185,912 (10%)	45.8 (4.4)	32.3 (3.6)	17.8 (3.3)	4.1 (1.9)	0.0 (0.0)
$ 5,000-$ 9,999	178	204,201 (10%)	54.8 (4.1)	26.6 (3.7)	13.1 (2.9)	4.8 (1.3)	0.7 (0.7)
$10,000-$14,999	179	198,185 (8%)	39.6 (4.5)	27.7 (3.8)	24.8 (3.5)	7.5 (1.9)	0.4 (0.4)
$15,000-$19,999	161	182,217 (9%)	33.5 (4.8)	31.9 (4.6)	28.0 (5.0)	6.2 (1.8)	0.4 (0.4)
$20,000-$29,999	259	277,749 (6%)	19.4 (3.2)	30.0 (3.4)	34.8 (2.9)	13.8 (2.1)	1.9 (0.9)
$30,000-$39,999	213	227,366 (7%)	15.0 (2.2)	24.7 (2.2)	36.4 (2.9)	19.6 (2.6)	4.3 (1.6)
$40,000-$49,999	146	152,401 (7%)	7.4 (2.5)	20.4 (3.4)	39.7 (3.6)	28.0 (4.2)	4.5 (1.5)
$50,000 and Over	208	211,757 (9%)	6.2 (1.8)	18.2 (2.8)	34.1 (3.6)	30.0 (2.9)	11.4 (2.1)
Refused & Don't Know	259	287,877 (7%)	43.8 (3.2)	35.2 (3.0)	15.4 (2.6)	5.2 (1.1)	0.4 (0.4)
PERSONAL INCOME							
Under $5,000	423	482,314 (6%)	40.1 (2.6)	29.1 (2.4)	21.1 (2.0)	8.7 (1.4)	1.0 (0.5)
$ 5,000-$ 9,999	270	296,515 (5%)	42.4 (2.9)	26.4 (2.5)	21.4 (2.8)	8.8 (1.4)	1.0 (0.6)
$10,000-$14,999	235	257,492 (6%)	25.0 (3.0)	32.1 (3.6)	32.2 (4.0)	9.1 (2.1)	1.6 (0.8)
$15,000-$19,999	153	166,844 (7%)	20.4 (3.6)	37.5 (4.5)	27.8 (3.4)	12.8 (2.8)	1.4 (0.8)
$20,000-$29,999	209	230,415 (7%)	15.1 (3.4)	25.3 (2.9)	37.9 (3.9)	18.5 (2.7)	3.2 (1.3)
$30,000-$39,999	128	139,895 (8%)	15.8 (3.1)	16.5 (3.5)	31.6 (4.2)	24.3 (3.5)	11.8 (3.0)
$40,000-$49,999	46	48,557 (13%)	3.6 (2.5)	18.2 (5.5)	33.9 (7.3)	32.3 (6.2)	12.1 (3.9)
$50,000 and Over	62	64,621 (13%)	6.6 (3.2)	26.3 (5.5)	34.3 (7.3)	26.2 (4.9)	6.5 (3.2)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D-4 (continued)

Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Prose Literacy

	n	Weighted N	225	226-275	276-325	326-375	376
OCCUPATION							
Laborer	395	462,494 (7%)	47.4 (2.5)	29.4 (2.1)	19.7 (2.4)	3.0 (0.7)	0.6 (0.3)
Service	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Operative	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Clerical	209	204,798 (6%)	17.3 (2.7)	33.6 (3.6)	26.9 (2.9)	19.7 (2.6)	2.5 (1.2)
Craft	20	23,986 (22%)*	37.5 (12.6)	26.4 (10.9)	20.4 (10.5)	10.1 (7.3)	5.6 (5.7)
Sales	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Technical	232	270,138 (9%)	35.1 (3.1)	27.7 (2.4)	29.3 (2.8)	6.9 (1.8)	1.1 (0.6)
Professional	263	278,005 (7%)	11.1 (1.8)	20.8 (2.6)	33.7 (3.2)	27.6 (3.1)	6.8 (1.5)
Manager	203	203,330 (8%)	13.6 (2.5)	32.1 (4.4)	34.9 (3.7)	14.8 (2.4)	4.6 (1.7)
WEEKS OF EMPLOYMENT							
0-13 Weeks	641	688,189 (4%)	44.7 (2.1)	25.9 (1.8)	20.0 (1.7)	8.5 (1.0)	0.8 (0.4)
14-39 Weeks	250	286,523 (6%)	26.9 (2.8)	34.1 (3.2)	26.0 (2.9)	10.6 (2.0)	2.4 (0.9)
40+ Weeks	861	944,196 (3%)	19.4 (1.7)	27.5 (1.7)	32.3 (1.6)	16.7 (1.1)	4.0 (0.7)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	510	595,076 (5%)	45.6 (2.5)	30.8 (2.3)	17.2 (1.6)	5.6 (1.0)	0.8 (0.4)
AFDC	98	120,302 (10%)	45.8 (5.4)	35.6 (5.8)	15.0 (3.3)	2.7 (1.5)	1.0 (1.0)
Gen. Assis., Home Relief	15	16,408 (23%)*	48.9 (11.3)	31.9 (11.7)	12.3 (7.3)	7.0 (6.8)	0.0 (0.0)
Suppl. Security Income	196	231,581 (7%)	60.4 (3.9)	25.2 (3.2)	12.4 (2.6)	1.9 (0.9)	0.0 (0.0)
Food Stamps	269	331,510 (6%)	52.1 (2.8)	28.8 (2.4)	14.2 (1.7)	4.2 (1.3)	0.6 (0.4)
Unemployment Comp.	84	96,138 (13%)	33.2 (6.2)	34.8 (5.1)	22.7 (4.4)	7.3 (2.7)	2.0 (1.5)
Other	87	92,509 (13%)	34.4 (5.1)	29.7 (4.6)	22.3 (4.2)	11.3 (3.2)	2.3 (1.7)
HOURS WORKED LAST WEEK							
1-20 Hours	118	131,930 (11%)	27.9 (5.2)	28.3 (3.4)	21.3 (3.6)	19.5 (3.8)	3.0 (1.9)
21-34 Hours	101	109,427 (10%)	32.8 (5.0)	30.2 (4.4)	22.7 (4.5)	13.3 (2.7)	1.0 (1.0)
35-40 Hours	442	476,848 (4%)	20.9 (2.5)	26.8 (2.7)	33.7 (2.7)	14.9 (1.5)	3.7 (1.0)
41+ Hours	317	362,428 (5%)	17.8 (2.5)	29.9 (2.5)	30.9 (2.6)	16.4 (2.0)	5.0 (1.3)
WAGES PER HOUR							
Less than $ 3.85	108	129,812 (10%)	38.2 (4.5)	29.2 (4.3)	23.8 (5.2)	8.1 (2.3)	0.6 (0.6)
$ 3.86-$ 4.99	112	125,691 (9%)	38.1 (4.7)	32.5 (4.5)	21.5 (4.2)	7.3 (2.6)	0.6 (0.6)
$ 5.00-$ 6.99	174	103,671 (8%)	24.7 (3.1)	34.5 (3.5)	26.5 (3.8)	12.2 (2.4)	2.0 (1.0)
$ 7.00-$ 9.99	161	175,111 (8%)	16.8 (3.2)	31.9 (3.7)	33.4 (3.8)	15.5 (2.8)	2.4 (1.1)
$10.00 or More	315	348,212 (6%)	13.3 (2.4)	21.8 (2.1)	35.3 (2.8)	22.4 (2.3)	7.2 (1.6)

* Interpret with caution: sampling error cannot be accurately estimated.

Table D.5 **Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Document Literacy***

	n	Weighted N	225	226-275	276-325	326-375	376
TOTAL	1,804	1,977,152 (1%)	32.2 (1.4)	29.1 (1.0)	25.2 (1.0)	11.4 (0.8)	2.1 (0.4)
GENDER							
Male	761	940,038 (2%)	30.2 (1.8)	27.6 (1.4)	27.4 (1.5)	12.4 (1.3)	2.5 (0.7)
Female	1,043	1,037,114 (1%)	34.1 (1.9)	30.4 (1.5)	23.3 (1.6)	10.6 (0.9)	1.7 (0.5)
RACE/ETHNICITY							
White	1,300	1,312,910 (3%)	20.7 (1.2)	27.2 (1.1)	33.1 (1.2)	16.1 (1.1)	3.0 (0.6)
Black	473	631,432 (6%)	56.9 (2.2)	32.2 (2.0)	8.9 (1.2)	2.0 (0.6)	0.0 (0.0)
Hispanic	20	20,664 (25%)**	14.5 (7.9)	35.0 (11.7)	34.2 (11.3)	7.4 (5.0)	8.9 (6.0)
All Others	11	12,146 (33%)**	27.3 (13.0)	54.5 (15.4)	9.1 (8.1)	9.1 (9.5)	0.0 (0.0)
EDUCATION							
Less than High School	208	254,780 (6%)	83.5 (2.8)	13.6 (2.5)	2.4 (1.0)	0.4 (0.4)	0.0 (0.0)
Some High School	305	331,849 (7%)	54.3 (2.9)	33.2 (2.7)	11.1 (1.7)	1.4 (0.7)	0.0 (0.0)
H.S. Dip. or GED	580	635,128 (3%)	26.0 (2.1)	39.4 (2.1)	26.9 (2.0)	7.2 (1.1)	0.5 (0.3)
Some Postsecondary	345	370,923 (6%)	12.7 (2.1)	29.5 (2.8)	38.4 (2.0)	17.7 (1.9)	1.6 (0.7)
College Degree	362	379,838 (6%)	7.3 (1.4)	18.5 (2.7)	37.3 (2.6)	28.7 (2.5)	8.3 (2.0)
Don't Know	4	4,634 (62%)*	76.1 (10.4)	0.0 (0.0)	23.9 (10.4)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	140	184,903 (9%)	26.3 (3.7)	35.3 (3.2)	27.9 (3.9)	9.1 (2.1)	1.4 (1.0)
21-25	173	209,935 (7%)	18.4 (3.2)	37.8 (4.2)	28.8 (3.4)	14.9 (2.6)	0.0 (0.0)
26-31	238	250,960 (7%)	21.9 (3.1)	31.1 (3.2)	29.1 (3.5)	13.2 (2.0)	4.7 (1.4)
32-45	477	537,392 (3%)	19.0 (1.5)	24.1 (2.0)	31.5 (2.0)	21.5 (1.9)	3.9 (1.0)
46+	776	793,963 (3%)	49.4 (2.2)	28.0 (1.7)	18.1 (1.4)	3.7 (0.6)	0.8 (0.3)
HOUSEHOLD INCOME							
Under $5,000	156	185,912 (10%)	56.5 (3.9)	28.9 (3.4)	12.1 (3.2)	2.5 (1.3)	0.0 (0.0)
$ 5,000-$ 9,999	178	204,201 (10%)	57.8 (3.9)	28.4 (3.2)	10.0 (2.0)	3.8 (1.4)	0.0 (0.0)
$10,000-$14,999	179	198,185 (8%)	44.7 (4.5)	33.3 (3.8)	18.4 (2.8)	3.6 (1.4)	0.0 (0.0)
$15,000-$19,999	161	182,217 (9%)	29.8 (4.1)	41.2 (4.6)	20.8 (3.0)	7.5 (2.2)	0.7 (0.7)
$20,000-$29,999	259	277,749 (6%)	22.2 (3.1)	31.1 (3.1)	30.3 (2.8)	14.7 (2.3)	1.7 (0.8)
$30,000-$39,999	213	227,366 (7%)	13.5 (1.7)	30.5 (2.9)	36.4 (3.3)	17.3 (2.1)	2.4 (1.3)
$40,000-$49,999	146	152,401 (7%)	3.8 (2.1)	21.7 (2.9)	47.4 (4.8)	22.8 (4.4)	4.3 (1.7)
$50,000 and Over	208	211,757 (9%)	6.8 (1.8)	16.1 (2.6)	39.3 (3.4)	29.1 (3.3)	8.8 (2.5)
Refused & Don't Know	259	287,877 (7%)	48.0 (3.8)	29.3 (3.4)	17.4 (2.3)	4.6 (1.3)	0.7 (0.5)
PERSONAL INCOME							
Under $5,000	423	482,314 (6%)	45.4 (2.9)	29.1 (2.1)	19.6 (2.5)	5.4 (0.8)	0.4 (0.3)
$ 5,000-$ 9,999	270	296,515 (5%)	42.9 (3.3)	31.5 (2.6)	16.3 (2.4)	9.0 (1.6)	0.3 (0.3)
$10,000-$14,999	235	257,492 (6%)	29.6 (3.2)	36.8 (3.7)	24.0 (2.7)	8.5 (1.7)	1.1 (0.6)
$15,000-$19,999	153	166,844 (7%)	20.0 (3.6)	29.3 (3.7)	33.9 (3.4)	14.9 (2.3)	2.0 (1.2)
$20,000-$29,999	209	230,415 (7%)	15.4 (3.4)	26.4 (2.8)	38.7 (3.0)	15.1 (2.5)	4.5 (1.4)
$30,000-$39,999	128	139,895 (8%)	9.0 (2.5)	27.4 (4.7)	35.2 (4.8)	22.2 (3.3)	6.1 (2.3)
$40,000-$49,999	46	48,557 (13%)	3.9 (2.6)	12.6 (4.7)	43.3 (7.1)	32.8 (6.8)	7.4 (4.5)
$50,000 and Over	62	64,621 (13%)	9.0 (4.1)	13.4 (4.3)	33.8 (4.9)	35.2 (6.6)	8.6 (3.5)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D.5 *(continued)*

Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Document Literacy

	n	Weighted N	225	226-275	276-325	326-375	376
OCCUPATION							
Laborer	395	462,494 (7%)	53.7 (3.1)	26.6 (2.7)	13.3 (1.9)	5.5 (1.1)	1.0 (0.5)
Service	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Operative	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Clerical	209	204,798 (6%)	12.5 (2.5)	36.8 (3.7)	34.7 (3.2)	13.7 (2.4)	2.4 (1.1)
Craft	20	23,986 (22%)*	50.2 (12.2)	19.0 (8.5)	20.7 (9.3)	5.6 (5.7)	4.5 (4.6)
Sales	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0	••••• (0.0)
Technical	232	270,138 (9%)	37.5 (3.4)	33.5 (2.7)	24.1 (2.9)	4.1 (1.3)	0.7 (0.5)
Professional	263	278,005 (7%)	12.9 (2.2)	22.8 (2.6)	33.6 (3.0)	24.7 (3.0)	6.0 (1.4)
Manager	203	203,330 (8%)	16.4 (2.6)	29.3 (3.4)	34.2 (3.5)	18.5 (2.6)	1.5 (1.2)
WEEKS OF EMPLOYMENT							
0-13 Weeks	641	688,189 (4%)	48.5 (1.8)	28.6 (1.6)	16.4 (1.5)	5.5 (1.1)	0.9 (0.4)
14-39 Weeks	250	286,523 (6%)	30.4 (3.7)	28.3 (2.2)	30.7 (3.1)	8.7 (1.9)	2.0 (0.8)
40+ Weeks	861	9[illegible]196 (3%)	19.2 (1.9)	29.8 (1.8)	31.0 (1.7)	17.0 (1.5)	3.1 (0.7)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	510	595,076 (5%)	51.2 (2.4)	29.7 (2.1)	14.0 (1.2)	4.5 (1.0)	0.6 (0.3)
AFDC	98	120,302 (10%)	52.4 (5.2)	33.6 (4.8)	11.7 (3.0)	2.3 (1.6)	0.0 (0.0)
Gen. Assis., Home Relief	15	16,408 (23%)*	65.6 (12.1)	14.5 (9.2)	20.0 (9.7)	0.0 (0.0)	0.0 (0.0)
Suppl. Security Income	196	231,581 (7%)	65.2 (3.7)	25.1 (3.5)	8.0 (1.9)	1.4 (0.8)	0.3 (0.3)
Food Stamps	269	331,510 (6%)	58.8 (2.9)	28.9 (2.5)	9.6 (1.4)	2.7 (1.0)	0.0 (0.0)
Unemployment Comp.	84	96,138 (13%)	37.4 (5.2)	32.0 (5.0)	21.0 (4.0)	6.7 (3.0)	2.9 (1.8)
Other	87	92,509 (13%)	36.7 (5.2)	28.4 (5.6)	22.5 (4.3)	12.4 (4.2)	0.0 (0.0)
HOURS WORKED LAST WEEK							
1-20 Hours	118	131,930 (11%)	33.1 (6.5)	23.8 (4.3)	24.7 (4.5)	17.4 (4.0)	1.0 (1.0)
21-34 Hours	101	109,427 (10%)	25.2 (4.0)	36.9 (5.1)	27.2 (5.0)	10.0 (2.9)	0.7 (0.7)
35-40 Hours	442	476,848 (4%)	20.7 (2.3)	30.8 (2.4)	29.7 (1.6)	15.9 (1.7)	3.0 (0.8)
41+ Hours	317	362,428 (5%)	17.0 (3.2)	27.8 (2.6)	34.1 (3.1)	17.1 (2.4)	4.0 (1.3)
WAGES PER HOUR							
Less than $ 3.85	108	129,812 (10%)	34.4 (5.2)	40.6 (6.2)	17.2 (3.2)	6.7 (2.3)	1.0 (1.0)
$ 3.86-$ 4.99	112	125,691 (9%)	33.0 (4.6)	36.1 (5.2)	20.9 (3.5)	9.5 (2.6)	0.6 (0.6)
$ 5.00-$ 6.99	174	193,671 (8%)	23.3 (3.3)	37.5 (3.3)	28.2 (3.2)	10.0 (2.0)	1.0 (0.8)
$ 7.00-$ 9.99	161	175,111 (8%)	19.8 (3.4)	27.1 (3.7)	37.3 (3.9)	15.4 (2.4)	0.4 (0.4)
$10.00 or More	315	348,212 (6%)	12.8 (2.5)	22.9 (2.3)	35.4 (3.0)	22.4 (2.8)	6.5 (1.7)

* Interpret with caution: sampling error cannot be accurately estimated.

Table D.6 Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Quantitative Literacy*

	n	Weighted N	≤ 225	226-275	276-325	326-375	≥ 376
TOTAL	1,804	1,977,152 (1%)	27.0 (1.2)	25.3 (1.2)	28.2 (1.2)	15.2 (0.9)	4.2 (0.4)
GENDER							
Male	761	940,038 (2%)	26.4 (1.7)	22.7 (1.7)	28.0 (1.6)	17.4 (1.1)	5.5 (0.8)
Female	1,043	1,037,114 (1%)	27.6 (1.7)	27.7 (1.6)	28.5 (1.7)	13.2 (1.3)	3.1 (0.5)
RACE/ETHNICITY							
White	1,300	1,312,910 (3%)	14.4 (1.1)	23.2 (1.5)	34.9 (1.2)	21.4 (1.2)	6.1 (0.6)
Black	473	631,432 (6%)	53.8 (2.5)	29.8 (2.5)	14.5 (1.7)	1.8 (0.5)	0.0 (0.0)
Hispanic	20	20,664 (25%)**	10.7 (7.3)	27.4 (10.5)	27.9 (11.5)	23.3 (10.6)	10.6 (7.5)
All Others	11	12,146 (33%)**	27.3 (13.0)	18.2 (10.6)	27.3 (14.0)	18.2 (9.6)	9.1 (9.5)
EDUCATION							
Less than High School	208	254,780 (6%)	71.9 (2.9)	17.0 (2.6)	8.8 (2.0)	2.3 (1.0)	0.0 (0.0)
Some High School	305	331,849 (7%)	50.0 (3.4)	30.2 (3.0)	15.6 (1.7)	4.2 (1.2)	0.0 (0.0)
H.S. Dip. or GED	580	635,128 (3%)	20.9 (2.0)	33.2 (2.2)	31.8 (2.1)	12.0 (1.2)	2.1 (0.6)
Some Postsecondary	345	370,923 (6%)	8.6 (1.6)	24.1 (2.4)	38.1 (2.4)	23.4 (2.3)	5.8 (1.2)
College Degree	362	379,838 (6%)	5.0 (1.2)	14.7 (2.1)	36.7 (2.5)	30.8 (2.6)	12.9 (1.8)
Don't Know	4	4,634 (62%)**	45.4 (13.9)	28.0 (19.0)	26.5 (11.5)	0.0 (0.0)	0.0 (0.0)
AGE (AS OF FEB. 1, 1990)							
16-20	140	184,903 (9%)	21.6 (3.9)	34.9 (3.0)	32.7 (4.0)	10.8 (2.2)	0.0 (0.0)
21-25	173	209,935 (7%)	18.6 (3.3)	28.2 (3.9)	32.1 (3.7)	14.2 (3.0)	6.9 (2.1)
26-31	238	250,960 (7%)	20.9 (3.3)	26.1 (3.0)	33.8 (3.0)	15.0 (2.4)	4.3 (1.6)
32-45	477	537,392 (3%)	14.7 (1.4)	20.7 (2.0)	31.7 (2.2)	23.7 (1.7)	9.2 (1.1)
46+	776	793,963 (3%)	40.8 (1.9)	25.2 (1.8)	22.1 (1.6)	10.8 (1.4)	1.1 (0.4)
HOUSEHOLD INCOME							
Under $5,000	156	185,912 (10%)	52.1 (4.4)	29.2 (4.2)	16.0 (3.0)	2.2 (1.3)	0.4 (0.4)
$ 5,000-$ 9,999	178	204,201 (10%)	55.2 (4.1)	24.7 (4.0)	15.8 (2.8)	3.5 (1.3)	0.8 (0.6)
$10,000-$14,999	179	198,185 (8%)	39.5 (3.9)	30.9 (4.0)	22.3 (3.4)	6.4 (1.7)	0.9 (0.6)
$15,000-$19,999	161	182,217 (9%)	18.1 (3.6)	33.6 (4.6)	32.2 (3.2)	13.7 (2.6)	2.4 (1.2)
$20,000-$29,999	259	277,749 (6%)	18.2 (2.9)	22.9 (3.0)	38.1 (2.9)	17.1 (2.7)	3.7 (1.2)
$30,000-$39,999	213	227,366 (7%)	7.7 (2.0)	23.5 (3.0)	37.3 (2.8)	25.3 (2.7)	6.2 (1.8)
$40,000-$49,999	146	152,401 (7%)	3.1 (1.6)	16.4 (3.2)	33.5 (4.1)	34.0 (3.6)	13.1 (3.7)
$50,000 and Over	208	211,757 (9%)	3.5 (1.2)	13.7 (3.0)	38.8 (3.7)	31.6 (3.5)	12.4 (2.2)
Refused & Don't Know	259	287,877 (7%)	40.3 (3.4)	29.7 (2.9)	21.4 (3.3)	7.2 (1.7)	1.5 (0.8)
PERSONAL INCOME							
Under $5,000	423	482,314 (6%)	40.9 (2.9)	25.5 (2.4)	24.8 (2.5)	7.5 (1.3)	1.3 (0.5)
$ 5,000-$ 9,999	270	296,515 (5%)	35.9 (3.0)	27.5 (3.1)	26.3 (3.1)	8.8 (1.7)	1.5 (0.7)
$10,000-$14,999	235	257,492 (6%)	24.8 (3.3)	27.7 (3.3)	30.6 (2.8)	14.6 (2.2)	2.4 (1.1)
$15,000-$19,999	153	166,844 (7%)	14.9 (3.2)	21.7 (2.9)	38.1 (3.2)	19.0 (2.9)	6.3 (1.9)
$20,000-$29,999	209	230,415 (7%)	13.8 (3.4)	20.6 (3.0)	31.2 (3.4)	23.7 (3.2)	10.8 (2.2)
$30,000-$39,999	128	139,895 (8%)	5.0 (2.0)	19.5 (3.9)	34.8 (4.3)	33.1 (4.0)	7.6 (2.3)
$40,000-$49,999	46	48,557 (13%)	4.1 (2.7)	19.1 (6.3)	29.1 (6.9)	28.3 (7.6)	19.4 (7.6)
$50,000 and Over	62	64,621 (13%)	4.0 (2.9)	10.8 (4.1)	43.7 (5.9)	33.3 (6.8)	8.1 (3.6)

* The numbers in parentheses are estimated standard errors.

** Interpret with caution: sampling error cannot be accurately estimated.

Table D.6 (continued)

Mississippi: Weighted Percent of People in the Scale Levels Based on the First Scale Score, Quantitative Literacy

	n	Weighted N	225	226-275	276-325	326-375	376
OCCUPATION							
Laborer	395	462,494 (7%)	43.2 (2.9)	30.6 (2.3)	19.2 (2.0)	5.8 (1.2)	1.2 (0.4)
Service	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Operative	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Clerical	209	204,798 (6%)	15.6 (2.6)	29.9 (3.2)	30.2 (3.0)	18.9 (2.6)	5.3 (1.8)
Craft	20	23,986 (22%)*	34.9 (12.9)	19.9 (8.4)	24.3 (10.1)	16.3 (6.1)	4.5 (4.6)
Sales	0	0 (0%)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)	••••• (0.0)
Technical	232	270,138 (9%)	35.0 (3.2)	23.5 (3.1)	25.1 (3.1)	12.5 (2.1)	4.0 (1.3)
Professional	263	278,005 (7%)	9.0 (1.9)	17.7 (2.5)	35.4 (2.9)	27.9 (3.0)	10.0 (1.9)
Manager	203	203,330 (8%)	7.3 (1.8)	24.3 (4.0)	40.7 (4.1)	23.3 (3.3)	4.4 (1.6)
WEEKS OF EMPLOYMENT							
0-13 Weeks	641	688,189 (4%)	41.1 (2.1)	26.3 (1.7)	21.9 (1.8)	9.5 (0.9)	1.2 (0.4)
14-39 Weeks	250	286,523 (6%)	22.8 (3.0)	27.1 (2.9)	36.7 (3.4)	9.8 (1.8)	3.6 (1.2)
40+ Weeks	861	944,196 (3%)	16.7 (1.5)	23.9 (1.5)	31.0 (1.5)	21.6 (1.3)	6.8 (0.9)
SOCIAL SERV. CLIENT STAT.							
Any Social Service	510	595,076 (5%)	44.4 (2.1)	27.7 (2.1)	20.1 (1.9)	5.9 (1.1)	2.0 (0.7)
AFDC	98	120,302 (10%)	56.3 (4.7)	24.3 (4.1)	17.4 (3.5)	1.0 (1.0)	1.0 (1.0)
Gen. Assis., Home Relief	15	16,408 (23%)*	61.9 (14.0)	21.9 (11.7)	12.4 (8.3)	3.8 (3.6)	0.0 (0.0)
Suppl. Security Income	196	231,581 (7%)	56.5 (3.3)	24.3 (3.6)	14.6 (2.1)	3.8 (1.4)	0.8 (0.6)
Food Stamps	269	331,510 (6%)	54.3 (2.8)	27.3 (2.6)	14.6 (2.1)	2.9 (1.1)	0.9 (0.6)
Unemployment Comp.	84	96,138 (13%)	30.2 (4.9)	30.9 (4.8)	25.8 (5.4)	7.7 (3.1)	5.3 (2.4)
Other	87	92,509 (13%)	22.6 (3.8)	23.5 (3.9)	29.6 (5.6)	19.2 (4.6)	5.2 (2.1)
HOURS WORKED LAST WEEK							
1-20 Hours	118	131,930 (11%)	27.1 (5.3)	20.3 (4.1)	33.2 (4.9)	17.0 (3.6)	2.4 (1.4)
21-34 Hours	101	109,427 (10%)	22.1 (3.9)	30.3 (4.5)	30.4 (3.9)	14.3 (3.3)	2.8 (1.6)
35-40 Hours	442	476,848 (4%)	17.4 (1.9)	28.1 (2.5)	26.9 (2.4)	21.1 (1.7)	6.6 (1.4)
41+ Hours	317	362,428 (5%)	14.3 (2.7)	20.3 (2.7)	35.5 (2.8)	21.6 (2.5)	8.3 (1.4)
WAGES PER HOUR							
Less than $ 3.85	108	129,812 (10%)	34.0 (4.3)	32.6 (6.0)	20.9 (4.5)	11.1 (2.8)	1.5 (1.1)
$ 3.86-$ 4.99	112	125,691 (9%)	27.1 (4.7)	35.1 (4.1)	26.9 (4.6)	7.4 (2.4)	3.5 (1.7)
$ 5.00-$ 6.99	174	193,671 (8%)	21.7 (3.3)	24.7 (4.1)	36.7 (3.7)	15.5 (2.7)	1.3 (0.9)
$ 7.00-$ 9.99	161	175,111 (8%)	15.9 (3.2)	25.2 (3.4)	32.6 (4.1)	20.5 (2.6)	5.9 (2.0)
$10.00 or More	315	348,212 (6%)	11.7 (2.3)	18.3 (2.6)	28.9 (2.7)	29.4 (2.5)	11.7 (2.0)

* Interpret with caution: sampling error cannot be accurately estimated.

APPENDIX E

ADDITIONAL JTPA
AND ES/UI DATA

Table E.1 Distributions of JTPA Applicants Reporting Materials in Their Home While Growing Up by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	Daily/Weekly newspaper				Magazines			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,484	1,084,264	84.1 (1.4)	14.8 (1.4)	2,475	1,072,811	83.3 (1.3)	15.5 (1.3)
RACE/ETHNICITY								
White	1,550	754,493	86.2 (1.5)	12.8 (1.5)	1,545	746,178	85.2 (1.0)	13.2 (1.0)
Black	653	221,860	82.0 (1.7)	16.5 (1.5)	650	220,167	80.2 (3.0)	19.4 (2.9)
Hispanic	159	64,912	77.2 (4.1)	22.8 (4.1)	158	63,467	77.0 (5.0)	23.0 (5.0)
LEVEL OF EDUCATION								
0-8 Years	176	64,975	71.1 (6.0)	28.4 (5.9)	176	64,975	73.0 (5.3)	26.6 (5.0)
9-12 Years	699	297,332	84.8 (1.1)	13.9 (1.1)	695	290,475	82.9 (1.1)	16.4 (1.5)
H.S. Dip. or GED	1,039	477,748	84.3 (2.3)	15.1 (2.3)	1,035	473,267	81.8 (2.8)	16.4 (2.6)
Some Postsecondary	439	182,572	84.9 (2.3)	12.7 (2.4)	438	182,458	89.7 (1.1)	9.2 (1.1)
College Degree	130	61,480	90.4 (4.0)	9.2 (3.9)	130	61,480	89.1 (4.7)	10.9 (4.7)
AGE								
16-20	485	181,526	84.1 (2.5)	14.8 (2.6)	484	181,118	84.0 (2.5)	16.0 (2.5)
21-25	483	212,117	82.1 (3.2)	16.3 (2.7)	481	211,594	86.3 (3.2)	12.6 (2.8)
26-31	501	232,384	89.1 (1.6)	10.5 (1.7)	499	229,219	85.8 (2.5)	13.3 (2.1)
32-45	731	338,328	83.7 (2.1)	15.5 (2.4)	729	334,912	80.5 (3.0)	17.7 (3.4)
46 +	255	109,154	78.9 (5.4)	18.9 (5.2)	253	105,213	78.9 (3.7)	19.1 (3.2)
LABOR FORCE STATUS								
Employed	488	237,084	82.4 (3.1)	17.2 (3.1)	487	235,114	86.6 (2.4)	11.4 (1.7)
Not Employed	827	351,874	85.0 (1.9)	13.7 (1.8)	825	351,058	81.6 (3.1)	17.6 (3.1)
Out of Labor Force	1,169	495,305	84.2 (1.7)	14.5 (1.4)	1,163	486,640	82.9 (1.4)	15.9 (1.5)

	More than 25 books				Encyclopedia			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,469	1,065,842	74.6 (1.5)	24.2 (1.3)	2,477	1,074,532	74.2 (1.3)	24.4 (1.4)
RACE/ETHNICITY								
White	1,539	739,746	76.3 (2.1)	22.6 (1.8)	1,544	746,000	76.6 (1.3)	21.9 (1.6)
Black	651	220,575	74.6 (3.0)	23.9 (2.7)	653	221,566	71.6 (2.4)	27.4 (2.2)
Hispanic	157	62,523	59.7 (7.9)	40.3 (7.9)	158	63,967	59.3 (6.0)	38.8 (6.6)
LEVEL OF EDUCATION								
0-8 Years	174	63,085	62.3 (5.6)	36.5 (5.3)	175	64,030	54.3 (5.7)	44.0 (5.5)
9-12 Years	690	285,818	71.8 (2.0)	26.1 (2.1)	694	291,278	76.0(2.7)	23.5 (2.6)
H.S. Dip. or GED	1,035	472,730	74.3 (3.0)	24.8 (3.0)	1,038	475,015	74 4 (2.4)	23.5 (2.3)
Some Postsecondary	439	182,572	80.5 (2.1)	18.4 (2.4)	439	182,572	76.0 (2.0)	22.7 (1.8)
College Degree	130	61,480	85.1 (2.5)	14.7 (2.5)	130	61,480	79.1 (4.4)	20.6 (4.5)
AGE								
16-20	484	180,582	78.0 (4.5)	21.2 (4.3)	483	180,858	79.2 (2.7)	20.6 (2.7)
21-25	482	210,672	76.1 (3.7)	22.5 (3.3)	482	210,672	79.6 (2.6)	19.1 (1.9)
26-31	496	225,359	79.9 (3.0)	18.5 (2.8)	500	229,651	83.0 (2.6)	15.8 (2.4)
32-45	726	333,377	71.6 (2.5)	27.0 (2.4)	729	335,412	69.3 (3.7)	28.6 (4.2)
46 +	252	105,099	64.2 (5.2)	35.2(5.1)	254	107,184	51.0 (4.8)	46.9 (5.1)
LABOR FORCE STATUS								
Employed	485	233,224	82.4 (2.4)	16.8 (2.4)	487	235,114	78.8 (2.7)	21.0 (2.7)
Not Employed	826	351,466	69.5 (2.6)	28.7 (2.3)	826	351,683	74.0 (2.2)	25.1 (2.1)
Out of Labor Force	1,158	481,152	74.5 (2.0)	24.4 (1.5)	1,164	487,735	72.0 (1.8)	25.5 (1.6)

* The numbers in parentheses are estimated standard errors.

Table E.1 (continued)

Distributions of JTPA Applicants Reporting Materials in Their Home While Growing Up by Race/Ethnicity, Level of Education, Age, and Labor Force Status

	Dictionary				Personal computer			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	2,471	1,075,294	92.7 (0.7)	6.3 (0.7)	2,434	1,039,718	6.2 (1.2)	93.2 (1.2)
RACE/ETHNICITY								
White	1,544	749,546	94.2 (1.0)	4.8 (0.9)	1,527	732,727	5.6 (1.1)	93.9 (1.0)
Black	647	218,781	90.3 (1.3)	8.7 (1.1)	632	202,501	7.1 (2.7)	92.5 (2.6)
Hispanic	159	64,912	86.8 (4.2)	12.4 (4.0)	154	61,900	3.1 (1.0)	96.9 (1.0)
LEVEL OF EDUCATION								
0-8 Years	176	64,975	81.6 (4.4)	17.9 (4.4)	172	63,412	10.6 (4.5)	88.9 (4.6)
9-12 Years	693	291,393	89.7 (1.2)	8.0 (1.2)	681	277,543	9.4 (2.6)	90.6 (2.6)
H.S. Dip. or GED	1,038	477,635	95.0 (1.3)	4.8 (1.3)	1,061	459,120	3.9 (1.2)	95.2 (1.3)
Some Postsecondary	435	180,341	95.5 (1.4)	3.3 (1.0)	436	180,157	7.0 (1.4)	91.7 (1.7)
College Degree	128	60,793	93.1 (3.6)	6.9 (3.6)	128	59,328	1.2 (0.8)	98.8 (0.8)
AGE								
16-20	484	180,582	94.1 (2.1)	5.7 (2.1)	477	177,847	15.1 (4.0)	84.9 (4.0)
21-25	482	211,140	94.2 (1.3)	4.7 (1.1)	476	205,476	11.5 (2.2)	86.7 (2.4)
26-31	496	229,107	95.4 (1.0)	3.9 (1.0)	482	213,798	2.0 (0.8)	97.2 (1.3)
32-45	727	337,472	91.6 (1.3)	6.8 (1.5)	720	327,239	1.1 (0.5)	98.5 (0.5)
46 +	254	107,184	84.6 (3.7)	14.7 (3.7)	250	104,604	3.0 (2.7)	97.0 (2.7)
LABOR FORCE STATUS								
Employed	488	237,552	93.4 (1.3)	6.1 (1.3)	480	230,964	7.3 (2.9)	92.6 (2.8)
Not Employed	821	349,911	91.9 (1.8)	7.4 (1.9)	813	344,071	4.8 (1.3)	94.4 (1.2)
Out of Labor Force	1,162	487,830	93.0 (1.4)	5.7 (1.0)	1,141	464,684	6.6 (1.3)	92.5 (1.4)

Table E.2 Distributions of ES/UI Participants Reporting Materials in Their Home While Growing Up by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

	Daily/Weekly newspaper				Magazines			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,263	18,866,194	85.6 (1.3)	14.0 (1.3)	3,260	18,867,922	84.6(1.3)	14.8 (1.3)
RACE/ETHNICITY								
White	2,388	11,876,754	91.6 (0.8)	8.3 (0.8)	2,384	11,865,891	88.3 (0.9)	11.1 (1.0)
Black	374	2,183,664	83.1 (3.1)	16.1 (3.0)	375	2,189,197	86.8 (2.9)	13.1 (2.8)
Hispanic	379	3,802,577	69.6 (5.4)	30.3 (5.4)	379	3,809,636	74.6 (6.8)	24.9 (6.5)
LEVEL OF EDUCATION								
0-8 Years	115	498,261	58.1 (13.7)	41.5 (13.7)	115	498,261	48.7 (8.9)	51.3 (8.9)
9-12 Years	496	2,917,044	76.1 (3.5)	23.5 (3.5)	498	2,932,751	77.4 (3.9)	22.0 (3.9)
H.S. Dip. or GED	1,278	6,678,907	87.6 (1.7)	12.2 (1.8)	1,274	6,666,871	84.9 (1.5)	14.4 (1.5)
Some Postsecondary	859	5,151,332	87.3 (1.6)	12.0 (1.3)	857	5,146,040	88.1 (2.4)	11.1 (2.5)
College Degree	512	3,598,131	91.4 (1.2)	8.5 (1.2)	513	3,601,479	89.8 (2.5)	10.0 (2.5)
AGE								
16-20	314	1,845,836	84.5 (6.5)	14.9 (6.6)	314	1,845,836	89.7 (1.6)	10.3 (1.6)
21-25	613	3,403,699	86.3 (2.4)	13.2 (2.5)	614	3,413,874	88.6 (1.7)	11.3 (1.8)
26-31	724	4,135,083	84.0 (2.5)	15.8 (2.5)	724	4,137,499	82.4 (2.6)	17.0 (2.3)
32-45	1,053	6,090,419	84.3 (1.8)	15.2 (1.7)	1,052	6,087,070	83.5 (1.7)	15.7 (1.6)
46 +	545	3,306,695	89.7 (1.7)	10.2 (1.7)	542	3,299,180	82.3 (3.5)	16.8 (3.5)
LABOR FORCE STATUS								
Employed	1,294	7,152,012	86.2 (1.9)	13.3 (1.9)	1,293	7,148,897	85.1 (2.0)	14.2 (2.0)
Not Employed	1,125	6,404,885	86.1 (1.2)	13.6 (1.2)	1,122	6,397,370	85.0 (1.6)	14.7 (1.5)
Out of Labor Force	844	5,309,297	84.1 (2.3)	15.5 (2.4)	845	5,321,655	83.6 (1.5)	15.9 (1.6)

	More than 25 books				Encyclopedia			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,254	18,800,127	77.7 (2.0)	21.6 (2.0)	3,255	18,810,660	76.2 (1.1)	23.6 (1.1)
RACE/ETHNICITY								
White	2,384	11,863,332	82.4 (1.2)	16.9 (1.1)	2,383	11,850,054	81.2 (0.7)	18.5 (0.7)
Black	373	2,180,316	72.3 (4.8)	27.6 (4.9)	373	2,179,660	81.0 (3.3)	19.0 (3.3)
Hispanic	377	3,774,308	65.6 (10.9)	33.3 (11.2)	378	3,783,281	60.2 (2.8)	39.6 (2.7)
LEVEL OF EDUCATION								
0-8 Years	115	498,261	49.4 (15.5)	50.2 (15.8)	114	483,526	48.6 (16.7)	50.6 (17.0)
9-12 Years	496	2,917,044	65.1 (4.3)	33.8 (4.0)	496	2,912,483	67.5 (2.5)	32.2 (2.5)
H.D. Dip. or GED	1,272	6,636,185	77.4 (2.1)	21.8 (2.0)	1,275	6,658,452	76.9 (2.2)	22.8 (2.2)
Some Postsecondary	855	5,124,639	81.7 (2.2)	17.6 (2.4)	855	5,136,206	79.0 (1.7)	20.8 (1.7)
College Degree	513	3,601,479	87.1 (1.9)	12.7 (1.9)	512	3,597,474	81.9 (1.6)	18.1 (1.6)
AGE								
16-20	313	1,819,966	88.6 (3.0)	11.4 (3.0)	314	1,845,836	80.5 (3.4)	19.2 (3.5)
21-25	612	3,401,299	78.4 (2.6)	21.4 (2.6)	613	3,399,138	76.0 (1.8)	24.0 (1.8)
26-31	723	4,132,765	80.9 (3.2)	18.6 (3.2)	723	4,132,765	81.3 (2.4)	18.4 (2.4)
32-45	1,050	6,066,044	75.0 (2.6)	24.5 (2.5)	1,051	6,080,829	76.0 (1.3)	23.9 (1.3)
46 +	543	3,301,123	72.0 (3.0)	25.6 (2.9)	542	3,275,481	67.6 (2.7)	32.1 (2.7)
LABOR FORCE STATUS								
Employed	1,293	7,146,480	78.2 (2.1)	20.9 (2.2)	1,292	7,143,078	77.2 (1.6)	22.6 (1.6)
Not Employed	1,120	6,352,417	77.9 (2.6)	21.4 (2.4)	1,120	6,364,133	76.8 (1.9)	23.1 (1.9)
Out of Labor Force	841	5,301,230	76.9 (2.2)	22.6 (2.1)	843	5,303,449	74.2 (1.7)	25.4 (1.7)

* The numbers in parentheses are estimated standard errors.

Table E.2 *(continued)*

Distributions of ES/UI Participants Reporting Materials in Their Home While Growing Up by Race/Ethnicity, Level of Education, Age, and Labor Force Status

	Dictionary				Personal computer			
	n	Weighted N	Yes	No	n	Weighted N	Yes	No
TOTAL	3,252	18,732,210	94.9 (0.8)	4.9 (0.8)	3,199	18,505,078	7.5 (0.6)	92.1(0.6)
RACE/ETHNICITY								
White	2,381	11,817,626	96.0 (0.7)	3.8 (0.6)	2,348	11,708,485	8.5 (1.4)	90.9 (1.4)
Black	374	2,183,664	96.4 (1.2)	3.6 (1.2)	366	2,128,426	3.1 (1.2)	96.9 (1.2)
Hispanic	376	3,757,184	90.3 (6.7)	9.5 (6.6)	370	3,710,895	6.4 (2.2)	93.5 (2.2)
LEVEL OF EDUCATION								
0-8 Years	116	499,787	67.2 (13.0)	32.1 (13.5)	114	495,861	0.0 (0.0)	100.0 (0.0)
9-12 Years	495	2,913,757	93.5 (2.5)	6.2 (2.5)	489	2,829,432	4.0 (1.0)	95.9 (1.0)
H.S. Dip. or GED	1,271	6,609,014	95.3 (0.7)	4.6 (0.7)	1,258	6,557,638	10.0 (0.9)	89.8 (1.0)
Some Postsecondary	857	5,132,550	97.2 (0.6)	2.7 (0.6)	840	5,059,421	7.0 (1.1)	92.6 (1.1)
College Degree	510	3,554,583	96.6 (1.5)	3.4 (1.5)	495	3,540,208	7.5 (2.0)	91.6 (2.1)
AGE								
16-20	313	1,820,710	97.6 (1.3)	2.2 (1.3)	313	1,842,434	27.3 (6.0)	72.7 (6.0)
21-25	612	3,400,412	95.7 (1.5)	4.2 (1.5)	603	3,332,460	14.0 (1.6)	85.8 (1.6)
26-31	721	4,090,616	96.4 (0.7)	3.5 (0.7)	714	4,042,752	4.7 (0.7)	94.7 (0.8)
32-45	1,051	6,069,392	94.5 (1.0)	5.3 (1.0)	1,026	5,951,003	2.7 (1.2)	96.8 (1.2)
46 +	541	3,266,617	91.6 (1.7)	8.3 (1.7)	531	3,259,773	1.7 (1.0)	97.9 (1.0)
LABOR FORCE STATUS								
Employed	1,294	7,150,190	94.8 (1.1)	4.9 (1.1)	1,274	7,076,844	7.8 (0.8)	92.0 (0.9)
Not Employed	1,118	6,333,330	95.9 (0.9)	4.1 (0.9)	1,106	6,328,648	6.8 (1.0)	92.6 (0.9)
Out of Labor Force	840	5,248,690	93.9 (0.9)	6.0 (0.9)	819	5,099,587	8.0 (1.5)	91.7 (1.5)

Table E.3 Participation in Adult Basic Education and Associated Level of Proficiency by Race/Ethnicity and Age*

	JTPA		ES/UI	
	Yes	No	Yes	No
TOTAL				
Prose	262.5 (4.7)	260.5 (4.4)	255.5 (11.6)	258.2 (5.9)
Document	258.2 (5.8)	253.4 (3.6)	259.6 (8.7)	249.7 (6.5)
Quantitative	263.2 (5.8)	256.2 (3.3)	267.3 (8.8)	255.2 (7.3)
RACE/ETHNICITY				
White				
Prose	273.7 (6.0)	269.7 (4.8)	279.6 (4.8)	278.6 (4.5)
Document	271.1 (6.3)	264.7 (3.6)	281.9 (6.2)	268.5 (3.1)
Quantitative	277.4 (6.7)	266.3 (2.4)	288.1 (8.5)	274.9 (4.7)
Black				
Prose	237.0 (9.3)	237.2 (5.3)	253.7 (9.9)	228.8 (13.7)
Document	232.5 (10.1)	222.5 (4.6)	249.5 (10.0)	214.3 (13.8)
Quantitative	234.8 (7.3)	230.8 (7.6)	252.7 (8.2)	218.3 (10.3)
Hispanic				
Prose	234.8 (20.1)	229.9 (9.9)	219.0 (21.9)	235.1 (11.9)
Document	228.0 (12.5)	224.7 (13.8)	226.8 (15.9)	228.6 (11.9)
Quantitative	227.2 (13.9)	227.6 (7.8)	237.8 (15.8)	234.7 (14.7)
AGE				
16-20				
Prose	239.2 (17.9)	252.0 (3.2)	247.0 (19.4)	253.5 (10.7)
Document	240.0 (19.1)	251.9 (4.2)	263.2 (19.4)	253.9 (6.0)
Quantitative	242.8 (14.2)	249.0 (4.2)	267.9 (12.1)	250.9 (6.5)
21-25				
Prose	271.5 (6.9)	259.9 (6.1)	246.7 (19.1)	254.9 (10.4)
Document	273.7 (12.4)	260.6 (7.5)	257.0 (11.8)	246.6 (13.7)
Quantitative	272.7 (18.1)	261.3 (6.6)	265.3 (15.0)	249.8 (12.6)
26-31				
Prose	262.7 (7.5)	279.1 (9.9)	251.2 (5.0)	274.4 (8.2)
Document	260.8 (9.0)	262.8 (5.8)	263.0 (7.9)	261.4 (11.7)
Quantitative	258.4 (10.2)	266.6 (5.6)	266.7 (8.4)	272.1 (10.6)
32-45				
Prose	270.6 (8.8)	263.4 (6.1)	266.2 (11.9)	253.9 (11.3)
Document	260.7 (6.9)	251.5 (8.5)	265.7 (9.2)	247.7 (12.7)
Quantitative	271.6 (7.4)	261.7 (7.6)	272.2 (11.5)	250.9 (11.1)
46+				
Prose	259.0 (11.1)	238.8 (9.0)	256.4 (15.7)	251.8 (11.9)
Document	247.6 (8.9)	226.7 (8.4)	238.8 (19.8)	234.2 (7.7)
Quantitative	262.1 (11.0)	234.7 (9.7)	258.2 (15.8)	251.1 (8.7)

* The numbers in parentheses are estimated standard errors.

Table E-4 Literacy Proficiency Levels for JTPA Applicants Who Studied for and Received GED by Race/Ethnicity and Age*

	Studied for GED		Received GED	
	Yes	No	Yes	No
TOTAL				
Prose	274.6 (4.6)	250.3 (5.6)	294.8 (4.1)	246.8 (7.7)
Document	270.5 (4.8)	244.3 (4.6)	285.4 (4.4)	250.1 (6.7)
Quantitative	273.1 (5.4)	249.5 (4.0)	289.1 (4.7)	251.1 (6.6)
RACE/ETHNICITY				
White				
Prose	282.6 (5.1)	260.5 (7.5)	301.4 (4.1)	254.7 (9.8)
Document	280.6 (4.7)	255.0 (6.3)	294.4 (4.7)	260.6 (7.2)
Quantitative	284.0 (5.8)	259.4 (4.8)	298.1 (5.5)	263.2 (7.9)
Black				
Prose	249.1 (11.4)	220.9 (11.2)	268.9 (12.8)	221.5 (10.4)
Document	242.3 (7.7)	214.7 (8.0)	254.6 (6.4)	222.3 (6.9)
Quantitative	244.8 (7.8)	222.9 (12.5)	260.2 (5.3)	221.4 (4.9)
Hispanic				
Prose	271.6 (12.6)	207.8 (6.2)	281.9 (17.7)	250.2 (19.3)
Document	264.5 (12.8)	204.0 (8.8)	265.7 (11.2)	259.8 (16.2)
Quantitative	269.9 (19.0)	207.4 (8.2)	280.3 (25.5)	246.6 (10.2)
AGE				
16-20				
Prose	254.3 (11.7)	250.4 (3.5)	284.1 (21.7)	237.6 (14.2)
Document	262.4 (10.1)	250.1 (5.4)	281.5 (16.4)	252.4 (10.8)
Quantitative	254.0 (7.9)	251.1 (5.0)	268.8 (11.8)	246.0 (9.7)
21-25				
Prose	276.5 (8.0)	243.8 (8.3)	302.4 (7.4)	246.4 (14.4)
Document	281.6 (11.5)	240.7 (8.3)	300.1 (7.2)	261.1 (19.8)
Quantitative	279.0 (17.3)	248.4 (7.0)	299.5 (15.2)	257.7 (22.9)
26-31				
Prose	277.5 (10.2)	282.6 (16.5)	293.3 (12.2)	256.3 (22.1)
Document	266.9 (7.3)	264.1 (12.9)	280.7 (8.9)	248.3 (14.7)
Quantitative	270.2 (8.3)	268.6 (13.2)	288.6 (6.7)	245.7 (14.9)
32-45				
Prose	281.2 (7.4)	237.2 (10.7)	299.4 (5.2)	245.6 (9.7)
Document	272.1 (6.6)	233.9 (11.4)	286.6 (6.1)	242.9 (9.6)
Quantitative	280.6 (4.9)	242.1 (11.4)	291.3 (5.8)	258.1 (8.2)
46+				
Prose	276.8 (8.1)	216.7 (10.0)	282.7 (9.7)	252.3 (14.3)
Document	264.6 (8.4)	205.7 (11.9)	273.2 (9.9)	229.1 (9.3)
Quantitative	273.9 (7.5)	221.0 (14.0)	282.7 (7.9)	237.2 (11.1)

* The numbers in parentheses are estimated standard errors.

Table E.5 Literacy Proficiency Levels for ES/UI Participants Who Studied for and Received GED by Race/Ethnicity and Age*

	Studied for GED		Received GED	
	Yes	No	Yes	No
TOTAL				
Prose	270.3 (6.2)	247.8 (8.5)	291.2 (6.0)	239.8 (8.2)
Document	268.3 (5.1)	240.8 (8.4)	284.7 (3.1)	244.6 (9.1)
Quantitative	276.6 (5.0)	248.8 (8.2)	293.3 (3.4)	254.7 (10.6)
RACE/ETHNICITY				
White				
Prose	283.9 (5.9)	277.2 (6.1)	295.3 (6.1)	256.9 (8.3)
Document	282.6 (3.9)	265.0 (5.0)	291.3 (4.1)	261.7 (7.3)
Quantitative	291.2 (4.6)	272.9 (7.9)	298.9 (3.9)	273.4 (10.4)
Black				
Prose	252.1 (11.9)	229.6 (12.5)	280.7 (12.0)	228.0 (14.3)
Document	244.5 (9.0)	218.8 (18.4)	270.6 (6.7)	222.5 (10.6)
Quantitative	245.6 (11.0)	223.8 (11.1)	269.2 (10.0)	225.6 (19.9)
Hispanic				
Prose	246.9 (15.3)	216.5 (9.6)	283.0 (12.5)	218.3 (18.0)
Document	242.3 (15.9)	214.8 (11.6)	260.0 (13.2)	227.2 (17.7)
Quantitative	252.8 (14.0)	226.2 (12.2)	281.9 (10.1)	236.9 (23.4)
AGE				
16-20				
Prose	256.7 (13.3)	251.5 (14.0)	297.4 (18.5)	241.2 (12.7)
Document	267.7 (12.9)	250.2 (6.9)	295.1 (15.8)	254.3 (12.5)
Quantitative	266.0 (10.1)	262.0 (12.1)	310.9 (13.3)	250.7 (11.2)
21-25				
Prose	266.6 (10.0)	243.2 (14.6)	293.0 (10.4)	235.1 (14.5)
Document	269.4 (8.5)	236.6 (14.3)	291.8 (5.4)	248.6 (13.0)
Quantitative	277.7 (8.3)	240.9 (13.1)	289.3 (9.5)	266.0 (22.4)
26-31				
Prose	275.4 (7.4)	256.3 (11.2)	281.3 (10.1)	262.1 (8.4)
Document	276.5 (5.5)	250.6 (13.8)	282.0 (7.2)	263.4 (9.1)
Quantitative	287.7 (5.3)	255.7 (13.7)	300.1 (5.1)	258.7 (10.5)
32-45				
Prose	278.8 (6.7)	242.3 (11.6)	292.4 (8.5)	203.2 (42.9)
Document	271.6 (8.3)	238.9 (12.2)	286.7 (7.8)	240.4 (12.8)
Quantitative	280.6 (6.1)	242.0 (11.6)	290.2 (8.1)	261.7 (15.8)
46+				
Prose	262.0 (21.1)	249.5 (12.1)	292.4 (8.5)	203.2 (42.9)
Document	246.4 (15.1)	230.5 (8.6)	271.3 (8.5)	198.5 (31.5)
Quantitative	264.0 (16.6)	249.9 (8.1)	287.2 (8.2)	218.3 (31.2)

* The numbers in parentheses are estimated standard errors.

Table E.6 Literacy Proficiency Levels for JTPA Applicants Reporting Adequacy of Literacy Skills for Their Job*

	Reading		Writing		Mathematics	
	Yes	No	Yes	No	Yes	No
RACE/ETHNICITY						
White						
Prose	297.1 (3.2)	233.3 (14.0)	297.1 (2.7)	269.6 (12.2)	297.5 (2.7)	272.1 (13.7)
Document	288.4 (3.1)	231.4 (11.3)	288.7 (3.1)	260.1 (7.7)	289.0 (2.9)	262.2 (10.4)
Quantitative	295.9 (2.7)	258.5 (15.6)	296.4 (2.6)	273.8 (11.7)	297.4 (2.7)	267.2 (13.1)
Black						
Prose	271.3 (3.7)	187.9 (17.2)	271.8 (4.0)	220.8 (19.0)	270.8 (4.1)	240.8 (12.8)
Document	255.6 (3.3)	197.6 (22.2)	255.9 (3.0)	222.4 (14.5)	255.2 (3.2)	234.8 (15.3)
Quantitative	261.6 (3.9)	210.8 (22.4)	262.0 (4.2)	227.4 (20.4)	261.6 (4.2)	239.8 (24.1)
Hispanic						
Prose	267.4 (7.1)	238.7 (29.5)	272.8 (7.5)	206.9 (15.2)	268.6 (7.3)	220.7 (15.0)
Document	257.9 (4.8)	220.6 (44.6)	262.0 (5.5)	200.3 (14.4)	258.9 (5.2)	203.5 (15.6)
Quantitative	263.6 (5.3)	238.8 (24.2)	269.3 (5.1)	201.5 (11.3)	265.3 (4.8)	209.1 (13.0)
LABOR FORCE STATUS						
Employed						
Prose	302.3 (7.7)	224.3 (21.7)	302.1 (7.7)	288.1 (14.2)	301.3 (6.8)	291.8 (23.2)
Document	287.0 (6.1)	218.6 (12.6)	287.2 (6.2)	264.5 (11.3)	286.0 (5.5)	274.6 (22.8)
Quantitative	292.6 (6.5)	253.6 (26.8)	292.9 (6.3)	281.7 (13.8)	292.6 (5.8)	277.2 (24.6)
Not Employed						
Prose	287.4 (3.7)	220.5 (20.1)	288.6 (3.6)	242.4 (14.1)	288.3 (3.7)	258.3 (15.4)
Document	276.8 (4.0)	198.1 (18.1)	278.1 (3.8)	235.2 (13.8)	277.4 (4.2)	248.8 (12.9)
Quantitative	283.4 (3.6)	237.1 (18.0)	284.8 (3.3)	246.4 (12.4)	285.2 (3.6)	248.4 (15.3)
Out of Labor Force						
Prose	284.6 (3.3)	224.7 (15.7)	285.2 (3.6)	237.6 (12.8)	284.2 (3.1)	262.5 (10.8)
Document	276.8 (2.7)	230.1 (12.4)	277.5 (2.7)	237.6 (8.1)	276.9 (2.6)	254.4 (7.8)
Quantitative	284.6 (2.5)	244.2 (21.0)	285.9 (2.7)	242.7 (12.0)	285.2 (2.8)	261.6 (9.3)

* The numbers in parentheses are estimated standard errors.

Table E.7

Literacy Proficiency Levels for ES/UI Participants Reporting Adequacy of Literacy Skills for Their Job*

	Reading		Writing		Mathematics	
	Yes	No	Yes	No	Yes	No
RACE/ETHNICITY						
White						
Prose	312.7 (1.9)	268.0 (10.3)	313.2 (2.1)	289.4 (7.4)	313.6 (2.0)	282.4 (6.0)
Document	303.5 (2.0)	267.2 (12.1)	304.4 (2.0)	278.9 (5.3)	305.0 (2.1)	267.0 (5.0)
Quantitative	310.1 (1.6)	281.6 (8.5)	311.1 (1.5)	287.8 (9.3)	311.9 (1.5)	272.7 (5.4)
Black						
Prose	263.9 (4.7)	225.4 (26.1)	263.7 (4.9)	248.0 (18.3)	265.0 (4.4)	237.5 (21.3)
Document	251.2 (3.1)	236.3 (18.6)	251.3 (3.1)	242.1 (13.6)	251.9 (2.9)	237.4 (24.2)
Quantitative	259.9 (5.7)	222.0 (15.5)	260.3 (5.7)	234.1 (12.0)	261.1 (5.3)	224.9 (16.4)
Hispanic						
Prose	257.0 (5.8)	188.0 (12.5)	257.6 (6.7)	210.9 (16.1)	254.7 (4.7)	224.9 (22.6)
Document	252.9 (6.5)	185.8 (15.1)	254.4 (7.6)	202.0 (18.9)	250.9 (5.3)	218.9 (25.1)
Quantitative	261.0 (4.3)	208.2 (11.4)	262.0 (5.3)	218.7 (10.1)	260.0 (3.8)	231.1 (15.9)
LABOR FORCE STATUS						
Employed						
Prose	297.7 (2.9)	226.3 (23.4)	299.1 (3.0)	262.9 (12.4)	297.3 (2.9)	275.6 (11.6)
Document	293.4 (3.3)	232.7 (23.2)	295.3 (3.2)	257.8 (12.4)	294.1 (3.0)	259.0 (13.3)
Quantitative	300.3 (3.4)	246.2 (19.3)	301.8 (3.4)	267.1 (12.4)	301.3 (3.1)	267.0 (10.4)
Not Employed						
Prose	295.8 (3.9)	252.2 (19.9)	296.3 (4.2)	270.6 (10.8)	296.7 (4.1)	262.9 (15.4)
Document	287.6 (3.3)	246.4 (17.6)	288.2 (3.2)	262.4 (11.1)	288.3 (3.4)	256.6 (12.9)
Quantitative	296.1 (2.6)	256.9 (10.4)	297.5 (2.8)	265.7 (8.8)	297.7 (2.8)	256.5 (10.1)
Out of Labor Force						
Prose	289.2 (6.8)	199.9 (13.8)	287.6 (6.5)	248.1 (24.6)	288.6 (6.7)	238.0 (21.0)
Document	278.0 (4.2)	206.5 (18.6)	277.3 (4.6)	237.2 (15.2)	278.1 (4.1)	229.4 (16.0)
Quantitative	283.4 (4.4)	223.9 (17.5)	283.2 (4.7)	250.1 (16.1)	284.1 (5.1)	236.4 (12.4)

* The numbers in parentheses are estimated standard errors.

Table E.8 Frequency of Help Received by JTPA Applicants for Literacy Activities by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Filling out forms

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	2,483	1,092,157	1.9 (0.5)	4.5 (0.8)	7.1 (0.5)	24.4 (1.4)	62.1 (1.6)
RACE/ETHNICITY							
White	1,549	758,674	1.6 (0.5)	4.3 (1.0)	6.9 (0.7)	26.1 (1.7)	61.1 (2.2)
Black	658	227,374	2.0 (1.1)	4.9 (0.7)	7.6 (1.2)	18.6 (2.0)	66.9 (2.2)
Hispanic	156	63,525	3.9 (2.7)	5.1 (1.6)	9.9 (2.8)	22.2 (4.3)	59.0 (4.0)
LEVEL OF EDUCATION							
0-8 Years	173	64,403	5.6 (2.3)	14.4 (3.4)	16.8 (3.9)	26.1 (4.6)	37.1 (5.9)
9-12 Years	699	298,861	2.2 (0.7)	5.2 (1.0)	10.2 (1.0)	27.6 (2.9)	54.8 (2.5)
H.S. Dip. or GED	1,039	482,786	2.0 (0.8)	3.9 (1.2)	5.5 (1.0)	26.4 (1.8)	62.1 (2.3)
Some Postsecondary	441	183,708	0.6 (0.5)	2.5 (0.8)	3.2 (0.8)	16.9 (2.5)	76.7 (2.6)
College Degree	129	61,297	0.0 (0.0)	1.4 (1.2)	6.0 (3.5)	13.9 (5.2)	78.7 (7.0)
AGE							
16-20	484	182,867	3.0 (1.2)	7.0 (0.8)	14.8 (1.3)	34.8 (4.2)	40.4 (3.3)
21-25	480	211,488	2.0 (0.8)	2.8 (0.7)	7.2 (1.8)	29.6 (3.3)	58.4 (4.3)
26-31	504	233,624	1.3 (0.6)	3.3 (0.8)	4.6 (1.6)	21.5 (2.1)	69.2 (2.6)
32-45	729	338,742	1.4 (0.6)	5.3 (1.9)	4.7 (1.0)	17.6 (1.6)	71.0 (1.9)
46 +	258	114,836	2.8 (1.7)	3.9 (1.3)	6.8 (2.9)	22.2 (3.6)	64.3 (2.9)
LABOR FORCE STATUS							
Employed	490	240,683	2.0 (0.8)	3.9 (0.9)	7.3 (1.3)	27.6 (4.1)	59.3 (4.1)
Not Employed	823	351,168	1.2 (0.4)	6.0 (1.0)	5.6 (0.8)	22.1 (2.3)	65.2 (2.6)
Out of Labor Force	1,170	500,306	2.5 (0.9)	3.8 (0.9)	8.1 (1.0)	24.4 (2.1)	61.3 (2.5)

Reading/explaining newspaper articles or other written information

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	2,479	1,088,414	4.2 (0.6)	5.5 (0.7)	4.3 (0.4)	12.7 (0.9)	73.3 (1.4)
RACE/ETHNICITY							
White	1,550	759,654	3.7 (0.7)	5.3 (0.7)	3.6 (0.6)	13.0 (1.3)	74.4 (1.9)
Black	653	222,650	5.1 (1.7)	6.6 (1.6)	6.8 (1.4)	9.2 (1.6)	72.3 (2.7)
Hispanic	156	63,525	3.9 (1.7)	6.5 (3.2)	5.9 (3.3)	18.1 (4.3)	65.6 (6.4)
LEVEL OF EDUCATION							
0-8 Years	173	64,403	10.2 (3.3)	10.3 (3.0)	10.1 (3.2)	11.3 (2.5)	58.0 (5.7)
9-12 Years	696	296,062	4.4 (0.9)	8.2 (1.1)	5.1 (1.1)	13.3 (2.1)	69.0 (2.9)
H.S. Dip. or GED	1,038	481,841	4.2 (0.8)	4.9 (1.1)	3.8 (0.9)	13.5 (1.4)	73.6 (1.5)
Some Postsecondary	441	183,708	2.9 (1.4)	2.1 (0.8)	3.0 (0.7)	10.3 (2.0)	81.7 (2.7)
College Degree	129	61,297	0.3 (0.3)	2.6 (2.1)	2.6 (2.3)	11.7 (4.0)	82.7 (6.2)
AGE							
16-20	484	182,903	7.2 (1.4)	12.5 (2.4)	8.6 (1.3)	17.3 (1.8)	54.5 (2.7)
21-25	480	211,488	4.1 (1.6)	7.4 (2.3)	4.0 (1.1)	11.6 (2.7)	73.0 (2.8)
26-31	502	231,734	2.3 (0.7)	2.7 (0.7)	5.8 (1.5)	12.1 (2.2)	77.1 (1.9)
32-45	727	336,853	4.2 (1.4)	3.6 (0.9)	2.2 (0.8)	9.5 (1.8)	80.5 (2.3)
46 +	258	114,836	2.9 (1.5)	2.0 (0.9)	0.9 (0.5)	15.9 (4.2)	78.4 (3.4)
LABOR FORCE STATUS							
Employed	490	240,683	4.7 (1.7)	7.6 (1.9)	4.3 (0.8)	13.9 (2.3)	69.6 (3.6)
Not Employed	823	351,168	2.8 (0.7)	3.8 (1.0)	4.5 (0.9)	9.7 (1.7)	79.1 (2.2)
Out of Labor Force	1,166	496,563	4.8 (0.9)	5.7 (1.1)	4.2 (0.7)	14.2 (1.3)	71.1 (2.2)

* The numbers in parentheses are estimated standard errors.

Table E.8 *(continued)*

Frequency of Help Received by JTPA Applicants for Literacy Activities by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Dealing with government agencies, public companies, business, medical personnel, etc.

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	2,478	1,088,426	2.5 (0.5)	2.7 (0.5)	8.3 (0.9)	26.3 (1.1)	60.3 (1.4)
RACE/ETHNICITY							
White	1,548	759,222	2.0 (0.5)	2.2 (0.5)	8.5 (1.1)	28.4 (1.6)	58.9 (2.4)
Black	655	224,540	3.7 (0.9)	4.6 (1.5)	7.4 (0.9)	19.3 (3.0)	65.1 (2.3)
Hispanic	155	62,081	3.4 (2.3)	3.3 (1.4)	5.7 (2.1)	25.3 (3.4)	62.4 (4.3)
LEVEL OF EDUCATION							
0-8 Years	172	64,217	6.4 (4.3)	6.0 (2.2)	14.2 (4.6)	13.4 (1.8)	61.0 (7.0)
9-12 Years	697	297,007	2.4 (0.7)	4.2 (1.0)	8.1 (1.3)	26.8 (3.1)	58.5 (2.8)
H.S. Dip. or GED	1,037	481,095	2.7 (0.8)	2.3 (0.7)	8.8 (1.3)	28.7 (1.6)	57.6 (2.4)
Some Postsecondary	441	183,708	0.4 (0.2)	1.1 (0.7)	6.1 (1.7)	25.1 (2.3)	67.2 (2.4)
College Degree	129	61,297	3.4 (2.6)	0.8 (0.5)	5.1 (2.9)	22.2 (4.5)	68.4 (7.3)
AGE							
16-20	484	182,903	4.1 (2.3)	6.8 (1.4)	12.3 (1.9)	29.9 (2.6)	46.9 (2.6)
21-25	479	211,241	2.2 (0.8)	1.6 (0.6)	8.9 (2.3)	30.0 (3.5)	57.4 (3.6)
26-31	502	231,734	1.7 (0.7)	1.9 (0.6)	6.5 (1.3)	26.8 (2.9)	63.1 (2.8)
32-45	727	337,111	2.2 (0.9)	2.6 (0.9)	8.6 (1.3)	22.1 (1.5)	64.6 (3.0)
46 +	258	114,836	3.1 (1.7)	0.5 (0.3)	3.3 (0.8)	23.3 (3.3)	69.8 (3.2)
LABOR FORCE STATUS							
Employed	489	240,497	2.0 (0.6)	2.4 (0.8)	8.8 (2.0)	29.6 (2.9)	57.3 (3.7)
Not Employed	822	350,921	1.5 (0.6)	2.4 (0.6)	9.8 (1.3)	22.7 (2.3)	63.6 (1.8)
Out of Labor Force	1,167	497,007	3.5 (1.0)	3.1 (0.7)	6.9 (0.9)	27.2 (1.7)	59.3 (2.1)

Writing notes and letters

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	2,480	1,089,551	3.1 (0.5)	4.1 (0.6)	3.2 (0.5)	10.3 (0.7)	79.2 (1.1)
RACE/ETHNICITY							
White	1,550	759,702	2.5 (0.6)	3.8 (0.7)	2.4 (0.5)	10.6 (1.0)	80.6 (1.3)
Black	654	223,739	4.5 (1.5)	4.5 (1.3)	4.4 (0.9)	7.3 (1.6)	79.3 (2.0)
Hispanic	156	63,525	5.2 (1.0)	4.8 (1.5)	7.4 (2.0)	13.3 (3.3)	69.3 (5.4)
LEVEL OF EDUCATION							
0-8 Years	173	64,403	3.9 (1.4)	7.4 (3.0)	9.1 (3.6)	15.7 (5.6)	63.9 (4.6)
9-12 Years	696	296,873	4.2 (0.9)	5.9 (1.0)	3.5 (0.8)	9.8 (1.5)	76.6 (1.9)
H.S. Dip. or GED	1,039	482,786	2.6 (0.9)	3.2 (0.8)	2.3 (0.7)	12.1 (1.3)	79.7 (1.6)
Some Postsecondary	440	182,907	2.8 (0.9)	3.1 (1.4)	3.2 (1.1)	4.7 (1.0)	86.1 (2.7)
College Degree	130	61,480	2.4 (2.2)	2.5 (1.5)	2.1 (1.3)	9.6 (3.5)	83.4 (5.8)
AGE							
16-20	483	182,768	5.6 (1.8)	7.5 (1.0)	4.0 (0.6)	10.5 (2.1)	72.4 (2.8)
21-25	480	211,488	3.7 (1.7)	2.4 (0.6)	2.5 (0.9)	6.1 (1.2)	85.2 (2.6)
26-31	501	230,933	2.4 (0.8)	2.2 (0.8)	3.0 (1.0)	11.6 (2.7)	80.8 (2.4)
32-45	730	338,925	2.3 (0.6)	5.4 (1.5)	3.6 (1.1)	8.7 (1.3)	80.0 (2.1)
46 +	258	114,836	2.2 (1.2)	2.1 (1.1)	1.8 (0.8)	16.7 (6.4)	75.2 (5.7)
LABOR FORCE STATUS							
Employed	490	240,683	2.9 (0.8)	5.9 (1.6)	3.0 (0.7)	11.2 (2.5)	76.9 (3.6)
Not Employed	822	350,367	2.0 (0.8)	3.3 (1.0)	2.4 (0.6)	10.9 (1.7)	81.4 (1.9)
Out of Labor Force	1,168	498,500	4.1 (0.9)	3.8 (0.7)	3.8 (1.0)	9.4 (1.6)	78.8 (2.2)

Table E.9 Frequency of Help Received by ES/UI Participants for Literacy Activities by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Filling out forms

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	3,263	18,789,008	1.9 (0.3)	2.6 (0.5)	4.3 (0.8)	19.3 (1.1)	71.9 (1.2)
RACE/ETHNICITY							
White	2,391	11,889,086	1.0 (0.2)	2.4 (0.5)	3.6 (0.5)	20.0 (1.2)	73.0 (1.4)
Black	373	2,183,531	2.7 (1.3)	3.2 (1.4)	4.3 (1.6)	17.3 (1.1)	72.6 (2.6)
Hispanic	378	3,731,821	4.0 (1.2)	2.5 (1.4)	6.5 (3.4)	19.3 (3.2)	67.6 (3.7)
LEVEL OF EDUCATION							
0-8 Years	116	480,863	6.4 (2.7)	15.1 (6.0)	8.9 (4.5)	21.5 (7.5)	48.1 (4.1)
9-12 Years	499	2,916,128	4.5 (1.1)	4.4 (1.5)	5.3 (1.6)	21.2 (2.7)	64.6 (5.0)
H.S. Dip. or GED	1,275	6,648,747	1.4 (0.4)	2.2 (0.5)	6.1 (1.3)	19.9 (2.4)	70.4 (3.0)
Some Postsecondary	857	5,119,273	1.6 (0.7)	2.2 (0.7)	2.6 (0.6)	19.9 (2.4)	73.6 (2.8)
College Degree	513	3,601,479	0.4 (0.2)	0.9 (0.5)	1.6 (0.7)	15.6 (2.8)	81.5 (3.0)
AGE							
16-20	313	1,844,337	5.5 (1.6)	6.0 (2.6)	8.7 (3.6)	30.8 (3.0)	49.0 (7.4)
21-25	613	3,357,627	2.2 (0.9)	4.1 (1.1)	4.6 (2.0)	25.9 (2.4)	63.2 (3.0)
26-31	724	4,138,293	1.4 (0.6)	0.9 (0.3)	3.8 (1.2)	16.9 (2.0)	77.0 (2.5)
32-45	1,055	6,059,866	1.3 (0.5)	2.2 (0.6)	3.4 (0.9)	15.6 (1.7)	77.5 (1.7)
46 +	544	3,304,422	1.2 (0.7)	2.4 (0.9)	3.9 (1.1)	16.3 (1.9)	76.2 (2.1)
LABOR FORCE STATUS							
Employed	1,295	7,115,948	1.9 (0.5)	1.8 (0.6)	4.8 (0.9)	17.8 (0.9)	73.7 (1.6)
Not Employed	1,122	6,389,876	1.3 (0.6)	4.0 (0.7)	4.5 (0.9)	17.9 (1.4)	72.3 (1.6)
Out of Labor Force	846	5,283,184	2.6 (0.7)	2.2 (0.7)	3.5 (1.4)	23.0 (3.0)	68.8 (2.8)

Reading/explaining newspaper articles or other written information

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	3,261	18,794,753	2.6 (0.6)	3.6 (0.5)	2.9 (0.3)	10.9 (0.7)	80.0 (1.3)
RACE/ETHNICITY							
White	2,389	11,885,200	1.5 (0.3)	2.1 (0.4)	2.2 (0.3)	12.2 (1.1)	82.1 (0.9)
Black	373	2,183,531	4.5 (1.8)	7.0 (2.1)	2.1 (0.9)	9.4 (1.6)	77.1 (4.3)
Hispanic	379	3,756,946	4.3 (1.9)	6.0 (2.0)	5.1 (1.1)	7.9 (0.7)	76.7 (4.5)
LEVEL OF EDUCATION							
0-8 Years	116	480,863	11.5 (4.3)	20.0 (5.1)	14.1 (5.0)	5.0 (2.0)	49.4 (4.8)
9-12 Years	500	2,941,253	5.7 (2.4)	6.3 (1.4)	4.4 (1.1)	10.7 (2.5)	72.9 (5.7)
H.S. Dip. or GED	1,274	6,646,804	1.7 (0.6)	4.8 (0.8)	2.5 (0.8)	13.4 (1.4)	77.5 (2.0)
Some Postsecondary	855	5,101,836	2.0 (0.4)	1.1 (0.4)	2.0 (0.4)	9.7 (1.3)	85.3 (1.3)
College Degree	513	3,601,479	1.3 (0.8)	0.5 (0.2)	1.9 (0.7)	9.2 (1.6)	87.1 (2.4)
AGE							
16-20	313	1,844,337	4.0 (2.1)	5.7 (3.0)	2.3 (0.7)	14.3 (2.9)	73.7 (6.2)
21-25	613	3,357,627	3.7 (1.5)	3.2 (0.9)	1.9 (0.6)	12.4 (1.3)	78.8 (3.1)
26-31	724	4,138,293	2.4 (1.1)	2.8 (1.0)	3.2 (0.7)	9.1 (1.7)	82.4 (1.8)
32-45	1,054	6,067,554	1.7 (0.5)	4.2 (0.9)	4.0 (0.9)	12.2 (1.2)	77.9 (1.5)
46 +	543	3,302,480	2.5 (1.1)	2.8 (0.6)	1.7 (0.8)	7.5 (1.3)	85.5 (1.4)
LABOR FORCE STATUS							
Employed	1,294	7,114,005	2.2 (0.8)	3.6 (0.8)	2.5 (0.7)	11.1 (1.3)	80.6 (1.5)
Not Employed	1,120	6,372,439	2.3 (0.6)	3.8 (0.9)	3.6 (0.7)	10.3 (0.9)	80.0 (1.8)
Out of Labor Force	847	5,308,310	3.5 (1.1)	3.3 (0.6)	2.6 (0.7)	11.5 (1.2)	79.1 (1.4)

* The numbers in parentheses are estimated standard errors.

Table E.9 (Continued)

Frequency of Help Received by ES/UI Participants for Literacy Activities by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Dealing with government agencies, public companies, business, medical personnel, etc.

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	3,263	18,797,718	1.1 (0.3)	3.3 (0.7)	6.4 (0.9)	28.2 (2.3)	61.0 (2.1)
RACE/ETHNICITY							
White	2,392	11,890,584	0.6 (0.1)	2.5 (0.5)	5.5 (0.7)	30.0 (1.8)	61.3 (2.3)
Black	373	2,183,531	1.4 (0.7)	3.4 (1.4)	9.7 (2.6)	19.8 (3.2)	65.8 (3.9)
Hispanic	378	3,754,526	1.9 (1.4)	4.6 (3.4)	8.1 (1.5)	31.0 (7.6)	54.4 (3.7)
LEVEL OF EDUCATION							
0-8 Years	116	479,942	6.0 (3.3)	18.7 (7.2)	8.3 (4.9)	17.5 (6.4)	49.4 (3.6)
9-12 Years	500	2,941,253	2.6 (1.4)	5.3 (2.4)	8.0 (1.3)	36.3 (5.6)	47.7 (2.0)
H.S. Dip. or GED	1,275	6,648,747	1.3 (0.3)	3.0 (0.9)	7.1 (1.3)	27.8 (2.2)	60.8 (2.0)
Some Postsecondary	856	5,103,779	0.4 (0.2)	1.4 (0.5)	5.5 (1.2)	25.7 (2.7)	67.0 (3.2)
College Degree	513	3,601,479	0.0 (0.0)	2.7 (1.1)	5.0 (1.3)	26.9 (3.6)	65.4 (4.5)
AGE							
16-20	314	1,845,836	1.6 (1.0)	6.6 (3.4)	10.1 (1.8)	38.1 (4.6)	43.6 (5.1)
21-25	613	3,357,627	2.0 (0.9)	2.9 (0.9)	7.4 (1.3)	35.0 (2.5)	52.7 (1.9)
26-31	724	4,138,293	1.3 (0.7)	1.8 (0.8)	5.0 (1.1)	28.3 (1.6)	63.6 (1.6)
32-45	1,054	6,067,077	0.6 (0.2)	4.0 (1.2)	6.0 (1.4)	26.1 (3.2)	63.3 (3.5)
46 +	544	3,304,422	0.8 (0.5)	2.0 (1.0)	6.3 (1.3)	19.3 (3.1)	71.6 (2.8)
LABOR FORCE STATUS							
Employed	1,294	7,113,528	1.4 (0.5)	3.1 (1.0)	5.5 (0.9)	27.5 (1.9)	62.5 (1.9)
Not Employed	1,122	6,375,880	0.6 (0.3)	3.1 (0.7)	8.2 (1.1)	27.6 (2.7)	60.4 (2.4)
Out of Labor Force	847	5,308,310	1.4 (0.5)	3.6 (1.1)	5.7 (1.7)	29.7 (3.9)	59.6 (3.8)

Writing notes and letters

	n	Weighted N	Daily	Weekly	Every Month	Once or Twice a Year	Never
TOTAL	3,259	18,799,904	1.5 (0.5)	3.1 (0.5)	5.3 (0.5)	8.4 (0.7)	81.7 (1.0)
RACE/ETHNICITY							
White	2,388	11,881,426	1.1 (0.4)	2.5 (0.3)	4.0 (0.5)	8.1 (0.7)	84.3 (1.2)
Black	373	2,183,531	1.9 (0.9)	5.2 (1.0)	5.4 (1.7)	9.8 (2.2)	77.8 (1.3)
Hispanic	378	3,754,546	1.9 (1.7)	3.5 (1.3)	9.7 (2.1)	8.1 (0.8)	76.9 (2.8)
LEVEL OF EDUCATION							
0-8 Years	116	479,961	5.5 (3.0)	4.1 (2.3)	15.3 (5.9)	11.7 (3.7)	63.3 (10.0)
9-12 Years	500	2,941,253	3.2 (1.9)	5.6 (2.7)	6.3 (2.1)	7.8 (1.5)	77.1 (3.7)
H.S. Dip. or GED	1,271	6,636,912	0.9 (0.3)	3.7 (0.7)	5.8 (0.8)	9.0 (0.9)	80.6 (1.8)
Some Postsecondary	857	5,119,273	1.2 (0.6)	2.4 (0.7)	3.9 (1.2)	6.6 (0.7)	85.8 (1.8)
College Degree	512	3,599,986	1.2 (1.0)	0.9 (0.5)	4.2 (1.1)	9.8 (2.7)	83.9 (3.4)
AGE							
16-20	314	1,845,836	1.6 (1.0)	2.2 (1.3)	9.0 (1.6)	7.8 (2.3)	79.4 (4.2)
21-25	613	3,357,627	1.7 (0.9)	3.9 (1.0)	3.2 (1.4)	8.3 (1.8)	82.9 (1.3)
26-31	721	4,128,460	1.4 (0.6)	1.8 (0.6)	6.3 (1.5)	9.7 (2.1)	80.7 (1.2)
32-45	1,053	6,079,096	1.3 (0.6)	3.2 (0.8)	5.2 (1.5)	8.9 (1.1)	81.5 (1.6)
46 +	544	3,304,422	1.9 (0.8)	4.6 (0.8)	4.3 (1.5)	6.1 (1.0)	83.1 (2.2)
LABOR FORCE STATUS							
Employed	1,294	7,111,778	1.8 (0.7)	2.9 (0.5)	4.7 (0.8)	9.3 (1.3)	81.4 (0.8)
Not Employed	1,121	6,385,679	0.7 (0.3)	3.9 (0.7)	5.2 (0.8)	8.3 (1.2)	81.9 (1.7)
Out of Labor Force	844	5,302,447	2.2 (0.9)	2.6 (1.0)	6.2 (1.1)	7.3 (1.0)	81.8 (1.9)

Table E.10 Frequency of Reading Written Materials on the Job by JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Reports or journal articles

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,146	957,958	18.0 (1.1)	10.4 (0.9)	7.9 (0.9)	9.7 (1.4)	54.1 (2.0)
RACE/ETHNICITY							
White	1,358	680,156	17.2 (1.4)	8.3 (0.9)	7.6 (1.0)	11.2 (1.3)	55.8 (2.6)
Black	534	178,961	18.2 (2.4)	13.0 (1.8)	11.2 (2.2)	7.8 (3.5)	49.8 (5.6)
Hispanic	147	60,246	26.2 (3.8)	22.4 (5.4)	4.5 (2.3)	2.9 (1.8)	44.1 (6.6)
LEVEL OF EDUCATION							
0-8 Years	135	53,070	7.7 (2.8)	9.5 (4.3)	2.4 (1.4)	8.3 (3.6)	72.1 (5.1)
9-12 Years	535	234,578	11.8 (1.9)	8.6 (1.8)	7.5 (1.8)	5.4 (1.2)	66.7 (3.6)
H.S. Dip. or GED	937	433,948	19.8 (2.0)	7.5 (0.9)	7.4 (1.0)	11.2 (2.2)	54.1 (2.7)
Some Postsecondary	413	175,747	22.0 (3.3)	14.8 (2.1)	9.9 (2.4)	10.0 (2.0)	43.3 (4.4)
College Degree	125	60,458	25.4 (5.6)	26.6 (10.0)	12.0 (2.3)	16.1 (6.0)	19.9 (4.5)
AGE							
16-20	286	112,024	7.9 (2.0)	10.5 (2.2)	5.2 (1.8)	9.4 (2.1)	67.0 (2.9)
21-25	427	190,921	15.0 (2.5)	12.1 (2.1)	5.4 (1.5)	11.8 (2.0)	55.6 (4.6)
26-31	465	216,553	16.0 (2.1)	11.7 (2.6)	9.1 (1.9)	6.1 (2.2)	57.2 (5.2)
32-45	709	329,200	19.5 (2.5)	9.6 (1.1)	8.7 (1.4)	11.0 (1.9)	51.2 (2.7)
46 +	246	103,170	31.9 (3.9)	7.9 (2.4)	10.1 (2.2)	9.5 (2.1)	40.6 (4.7)
LABOR FORCE STATUS							
Employed	435	216,936	14.7 (2.7)	11.6 (3.0)	10.7 (3.4)	9.3 (2.5)	53.7 (4.6)
Not Employed	769	334,503	22.2 (1.7)	11.4 (1.8)	5.5 (0.7)	11.4 (2.0)	49.6 (2.8)
Out of Labor Force	942	406,520	16.2 (2.0)	9.0 (1.0)	8.3 (1.9)	8.5 (1.5)	58.0 (2.8)

Forms

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,143	957,489	37.9 (2.2)	9.3 (1.0)	8.4 (0.9)	8.7 (0.9)	35.6 (1.9)
RACE/ETHNICITY							
White	1,358	678,890	39.0 (3.2)	6.8 (1.1)	7.1 (1.2)	8.6 (1.2)	38.6 (2.5)
Black	533	180,889	38.7 (4.3)	11.8 (2.5)	8.8 (1.4)	8.3 (2.3)	32.5 (6.5)
Hispanic	145	59,115	31.1 (4.5)	10.3 (4.0)	16.2 (6.6)	11.7 (2.0)	30.7 (5.3)
LEVEL OF EDUCATION							
0-8 Years	135	53,070	20.5 (4.3)	3.1 (1.4)	9.0 (5.9)	5.3 (3.5)	62.2 (6.4)
9-12 Years	535	233,843	26.9 (3.4)	9.8 (2.5)	7.3 (1.4)	9.6 (2.0)	46.4 (2.5)
H.S. Dip. or GED	935	434,475	39.5 (2.5)	7.3 (1.0)	10.5 (1.9)	8.0 (1.3)	34.8 (2.2)
Some Postsecondary	412	175,485	45.7 (4.2)	13.7 (2.2)	6.7 (1.5)	10.4 (2.3)	23.5 (3.6)
College Degree	125	60,458	61.7 (4.1)	15.5 (2.3)	2.8 (1.8)	8.8 (3.2)	11.2 (2.4)
AGE							
16-20	286	112,024	26.5 (3.2)	7.4 (2.0)	8.5 (2.1)	8.8 (2.1)	48.8 (3.5)
21-25	426	190,782	35.2 (4.4)	10.7 (2.5)	8.3 (2.1)	9.9 (2.4)	35.9 (3.3)
26-31	467	219,234	35.7 (3.7)	10.6 (2.4)	11.0 (2.8)	9.1 (1.9)	33.5 (3.6)
32-45	704	322,431	41.5 (2.7)	8.8 (1.2)	7.2 (1.6)	7.3 (1.2)	35.1 (2.3)
46 +	247	106,929	49.6 (4.1)	7.2 (2.1)	7.6 (2.2)	10.1 (3.5)	25.6 (4.3)
LABOR FORCE STATUS							
Employed	436	218,671	40.2 (4.2)	12.5 (2.5)	7.1 (2.1)	6.9 (1.6)	33.3 (3.7)
Not Employed	767	334,181	41.6 (2.4)	9.2 (1.1)	7.7 (1.4)	10.0 (1.5)	31.5 (1.5)
Out of Labor Force	940	404,637	33.7 (3.0)	7.8 (1.5)	9.7 (1.1)	8.7 (1.7)	40.2 (3.0)

* The numbers in parentheses are estimated standard errors.

Table E.10 (Continued)

Frequency of Reading Written Materials on the Job by JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Letters

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,143	955,657	13.4 (1.4)	11.8 (1.6)	8.1 (0.9)	11.4 (1.7)	55.3 (2.2)
RACE/ETHNICITY							
White	1,356	677,484	11.8 (1.6)	12.0 (2.0)	7.6 (1.1)	11.1 (1.7)	57.5 (2.2)
Black	536	180,588	16.5 (3.9)	11.8 (2.3)	8.0 (1.5)	14.1 (3.9)	49.6 (5.2)
Hispanic	144	58,990	23.7 (3.8)	7.5 (2.1)	11.2 (3.3)	6.7 (2.3)	50.8 (4.4)
LEVEL OF EDUCATION							
0-8 Years	135	53,070	2.7 (1.3)	3.6 (2.2)	6.0 (2.6)	8.8 (4.1)	78.8 (5.8)
9-12 Years	534	233,366	9.4 (1.6)	8.9 (2.7)	3.7 (1.0)	8.9 (2.6)	69.1 (4.5)
H.S. Dip. or GED	935	432,859	13.0 (1.9)	12.2 (1.9)	9.5 (1.4)	12.6 (2.1)	52.7 (2.5)
Some Postsecondary	413	175,747	18.5 (3.0)	14.6 (2.5)	9.4 (2.0)	11.5 (1.3)	46.0 (4.6)
College Degree	125	60,458	27.1 (5.9)	18.7 (5.8)	12.7 (4.2)	14.2 (5.5)	27.3 (5.8)
AGE							
16-20	286	112,024	11.7 (2.3)	6.4 (2.6)	9.9 (2.0)	8.9 (2.5)	63.1 (6.1)
21-25	428	191,866	11.1 (2.4)	14.2 (2.5)	10.0 (2.1)	8.5 (1.7)	56.2 (3.6)
26-31	465	217,812	12.3 (2.8)	10.4 (2.7)	7.3 (1.7)	11.4 (2.9)	58.7 (5.5)
32-45	705	324,696	15.5 (2.2)	12.6 (2.1)	6.7 (1.3)	12.3 (2.5)	53.0 (2.8)
46 +	246	103,170	16.4 (2.4)	12.0 (3.0)	7.9 (1.8)	16.2 (3.3)	47.5 (4.6)
LABOR FORCE STATUS							
Employed	434	218,070	12.5 (2.2)	13.4 (3.5)	9.2 (1.7)	15.1 (2.8)	49.7 (4.1)
Not Employed	769	333,984	15.4 (1.7)	12.3 (2.1)	7.3 (1.2)	10.4 (1.6)	54.6 (2.6)
Out of Labor Force	940	403,604	12.3 (1.7)	10.4 (1.7)	8.1 (1.6)	10.2 (2.0)	58.9 (3.1)

Diagrams or schematics

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,146	963,717	17.7 (1.3)	7.5 (0.8)	6.6 (0.8)	10.4 (1.0)	57.7 (1.6)
RACE/ETHNICITY							
White	1,359	685,249	18.6 (1.3)	7.6 (1.2)	6.7 (1.0)	10.4 (1.1)	56.7 (1.7)
Black	536	180,882	16.6 (2.9)	8.3 (1.8)	5.8 (2.0)	9.1 (2.8)	60.2 (5.0)
Hispanic	144	58,990	14.6 (3.8)	5.5 (2.4)	6.9 (3.0)	10.7 (3.0)	62.3 (5.5)
LEVEL OF EDUCATION							
0-8 Years	133	52,250	9.4 (4.0)	5.8 (2.3)	5.7 (3.0)	5.7 (2.4)	73.3 (6.9)
9-12 Years	534	233,924	16.6 (2.7)	5.9 (1.3)	5.3 (1.3)	5.0 (1.4)	67.1 (3.1)
H.S. Dip. or GED	938	439,290	15.8 (2.3)	7.2 (1.4)	6.1 (0.8)	11.4 (1.4)	59.5 (3.0)
Some Postsecondary	414	176,691	24.3 (3.6)	10.1 (2.8)	8.1 (2.0)	11.5 (1.7)	46.1 (2.6)
College Degree	125	60,458	24.2 (5.7)	10.4 (4.1)	9.8 (2.6)	26.0 (5.6)	29.6 (2.9)
AGE							
16-20	285	111,682	12.2 (3.4)	10.3 (4.6)	4.6 (2.6)	8.5 (2.2)	64.4 (3.8)
21-25	427	190,921	18.2 (2.7)	6.6 (1.4)	5.4 (2.2)	9.0 (1.7)	60.8 (3.7)
26-31	464	216,867	16.4 (1.6)	7.1 (2.1)	7.1 (1.8)	12.4 (1.7)	57.1 (3.5)
32-45	708	330,101	19.4 (2.9)	7.9 (1.0)	6.9 (1.0)	11.1 (1.8)	54.7 (2.2)
46 +	249	108,056	21.1 (3.3)	6.0 (1.8)	8.4 (1.9)	7.7 (2.5)	56.8 (4.2)
LABOR FORCE STATUS							
Employed	434	218,070	12.8 (2.6)	7.7 (2.5)	8.7 (1.9)	12.6 (3.3)	58.2 (3.4)
Not Employed	770	336,474	24.0 (3.5)	8.1 (1.7)	5.5 (0.8)	10.2 (1.2)	52.3 (2.5)
Out of Labor Force	942	409,174	15.2 (2.3)	7.0 (1.2)	6.4 (1.4)	9.5 (1.7)	62.0 (3.3)

Table E.11

Frequency of Reading Written Materials on the Job by ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Reports or journal articles

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,138	18,070,265	31.9 (1.5)	13.7 (0.8)	8.5 (0.4)	11.5 (0.9)	34.5 (1.7)
RACE/ETHNICITY							
White	2,309	11,549,940	31.8 (1.6)	13.1 (0.9)	9.5 (0.9)	12.7 (1.2)	32.9 (1.5)
Black	351	2,063,222	28.7 (2.7)	14.9 (1.7)	8.1 (2.9)	5.5 (1.2)	42.8 (4.9)
Hispanic	366	3,548,835	33.8 (6.8)	14.9 (1.5)	4.7 (1.3)	11.1 (3.1)	35.6 (5.0)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	14.3 (8.5)	7.8 (5.1)	6.2 (3.3)	4.2 (3.2)	67.5 (8.6)
9-12 Years	460	2,584,995	27.4 (4.8)	8.3 (2.2)	7.2 (1.6)	7.9 (1.4)	49.2 (3.9)
H.S. Dip. or GED	1,230	6,446,031	27.7 (2.4)	12.4 (1.1)	8.6 (0.9)	9.7 (1.2)	41.6 (2.4)
Some Postsecondary	824	4,949,889	32.9 (3.3)	15.0 (2.1)	7.6 (0.7)	15.2 (1.5)	29.3 (3.3)
College Degree	504	3,563,557	43.5 (3.4)	18.9 (3.3)	10.6 (1.3)	13.3 (1.9)	13.6 (2.1)
AGE							
16-20	246	1,375,025	21.5 (3.3)	12.3 (1.8)	7.4 (2.2)	9.0 (2.8)	49.9 (3.9)
21-25	583	3,245,643	28.9 (3.9)	14.8 (2.2)	5.9 (0.8)	9.6 (2.4)	40.8 (2.9)
26-31	715	4,117,788	27.2 (2.3)	15.6 (2.4)	8.4 (1.1)	14.4 (3.0)	34.4 (3.1)
32-45	1,044	6,002,800	37.5 (2.4)	13.0 (1.3)	10.1 (1.0)	10.5 (1.0)	28.8 (2.5)
46 +	538	3,262,810	34.8 (2.9)	12.0 (2.3)	8.4 (1.6)	12.7 (2.1)	32.2 (2.4)
LABOR FORCE STATUS							
Employed	1,260	6,967,168	28.4 (1.8)	16.3 (0.6)	8.7 (0.9)	12.3 (1.3)	34.4 (2.4)
Not Employed	1,099	6,260,871	34.4 (2.5)	11.6 (1.2)	9.2 (0.6)	11.3 (2.0)	33.5 (1.3)
Out of Labor Force	779	4,842,226	33.7 (3.8)	12.6 (1.5)	7.3 (1.0)	10.5 (2.2)	35.9 (3.5)

Forms

	n	Weighted N	Every Day	A Few Times a Week	Once a week	Less than Once a Week	Never
TOTAL	3,129	18,014,144	55.5 (2.8)	9.6 (0.8)	6.5 (1.0)	6.6 (0.7)	21.9 (1.8)
RACE/ETHNICITY							
White	2,302	11,504,111	59.1 (2.3)	10.3 (0.7)	5.2 (1.0)	6.2 (0.8)	19.1 (1.7)
Black	349	2,053,013	50.4 (3.2)	7.6 (2.8)	7.9 (2.1)	6.4 (0.8)	27.7 (3.6)
Hispanic	365	3,546,434	47.6 (4.6)	8.8 (2.4)	8.1 (2.2)	8.0 (2.0)	27.5 (4.1)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	13.4 (3.5)	7.4 (5.0)	12.3 (8.8)	0.6 (0.6)	66.3 (7.5)
9-12 Years	454	2,552,708	38.3 (3.8)	5.6 (0.8)	7.6 (1.8)	10.2 (2.1)	38.4 (2.8)
H.S. Dip. or GED	1,229	6,442,891	53.9 (3.4)	9.7 (1.7)	5.5 (1.3)	7.5 (1.1)	23.4 (3.2)
Some Postsecondary	823	4,932,543	61.7 (2.9)	9.0 (1.3)	5.5 (1.3)	5.8 (1.5)	18.0 (1.9)
College Degree	503	3,560,209	67.8 (2.5)	13.4 (2.2)	7.8 (2.0)	4.3 (1.2)	6.7 (1.5)
AGE							
16-20	245	1,361,363	44.7 (6.0)	8.9 (2.2)	8.2 (1.5)	7.8 (3.1)	30.4 (4.6)
21-25	582	3,243,831	49.6 (4.9)	8.1 (2.8)	8.3 (1.7)	9.5 (1.3)	24.6 (2.6)
26-31	711	4,104,696	52.8 (3.7)	9.4 (0.9)	4.5 (1.2)	8.2 (1.1)	25.1 (2.5)
32-45	1,042	5,993,953	63.8 (2.6)	9.0 (1.0)	5.2 (0.8)	5.3 (1.0)	16.7 (2.3)
46 +	537	3,244,101	53.9 (3.0)	12.5 (2.1)	8.8 (2.2)	3.3 (0.9)	21.5 (2.5)
LABOR FORCE STATUS							
Employed	1,257	6,945,692	55.0 (3.6)	10.8 (1.1)	6.7 (1.7)	6.8 (1.0)	20.7 (2.8)
Not Employed	1,094	6,233,705	56.9 (2.8)	9.8 (1.4)	6.3 (1.1)	7.3 (1.5)	19.7 (2.3)
Out of Labor Force	778	4,834,747	54.3 (2.9)	7.6 (1.7)	6.3 (1.6)	5.3 (1.2)	26.6 (2.2)

* The numbers in parentheses are estimated standard errors.

Table E.11 (continued)

Frequency of Reading Written Materials on the Job by ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Letters

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,128	17,999,850	25.9 (1.8)	14.7 (0.9)	8.3 (0.5)	13.2 (1.1)	37.9 (2.2)
RACE/ETHNICITY							
White	2,301	11,512,969	26.8 (1.8)	15.3 (1.0)	9.1 (0.7)	14.2 (1.4)	34.5 (2.0)
Black	350	2,057,690	17.2 (3.3)	14.9 (2.6)	7.1 (2.0)	15.2 (1.6)	45.7 (5.2)
Hispanic	365	3,534,099	26.9 (6.3)	14.2 (2.3)	6.6 (1.7)	9.8 (1.3)	42.4 (7.0)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	6.2 (4.6)	5.2 (5.1)	0.3 (0.3)	7.1 (3.8)	81.2 (4.5)
9-12 Years	454	2,551,822	16.1 (2.7)	9.1 (1.6)	4.5 (1.4)	15.0 (2.9)	55.3 (3.8)
H.S. Dip. or GED	1,229	6,444,220	18.3 (2.8)	15.1 (2.2)	8.3 (1.0)	14.0 (0.8)	44.3 (3.6)
Some Postsecondary	823	4,932,543	28.9 (3.1)	15.5 (1.7)	9.4 (1.3)	12.7 (1.9)	33.5 (3.3)
College Degree	503	3,560,209	45.5 (3.6)	18.1 (1.7)	10.5 (1.7)	12.1 (2.0)	13.9 (1.4)
AGE							
16-20	246	1,363,586	22.2 (5.5)	11.3 (3.0)	7.0 (2.7)	9.1 (2.5)	50.4 (5.4)
21-25	582	3,243,831	23.6 (2.4)	13.2 (2.5)	6.8 (1.2)	13.2 (1.7)	43.1 (5.1)
26-31	711	4,103,748	22.5 (2.1)	15.0 (2.0)	10.1 (1.8)	12.9 (1.0)	39.5 (4.4)
32-45	1,040	5,966,177	28.8 (2.9)	16.3 (2.0)	10.5 (0.8)	13.0 (1.7)	31.3 (3.2)
46 +	537	3,256,309	28.2 (3.1)	14.3 (2.9)	4.0 (1.2)	15.8 (2.2)	37.7 (3.2)
LABOR FORCE STATUS							
Employed	1,259	6,953,351	23.9 (1.9)	15.9 (1.8)	8.4 (0.8)	14.0 (1.5)	37.8 (2.9)
Not Employed	1,093	6,217,324	27.8 (3.2)	14.0 (0.9)	9.8 (1.5)	13.7 (2.0)	34.8 (3.0)
Out of Labor Force	776	4,829,176	26.5 (2.4)	13.8 (1.5)	6.3 (1.2)	11.4 (1.8)	42.0 (3.2)

Diagrams or schematics

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,127	18,030,026	23.0 (2.6)	9.9 (0.9)	8.2 (0.9)	11.2 (0.8)	47.7 (2.6)
RACE/ETHNICITY							
White	2,298	11,512,915	23.9 (1.7)	11.7 (1.2)	8.5 (1.0)	12.7 (0.9)	43.2 (1.6)
Black	350	2,057,690	13.9 (4.1)	7.4 (2.0)	5.3 (1.8)	9.7 (1.4)	63.8 (6.6)
Hispanic	366	3,548,835	24.1 (7.1)	7.3 (1.3)	7.6 (2.1)	7.8 (2.4)	53.2 (5.6)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	16.0 (8.5)	7.2 (5.2)	0.3 (0.3)	0.0 (0.0)	76.5 (9.9)
9-12 Years	456	2,568,770	20.7 (2.8)	5.9 (2.2)	5.9 (2.1)	6.7 (1.6)	60.8 (3.7)
H.S. Dip. or GED	1,226	6,433,479	22.1 (3.1)	8.7 (0.8)	5.5 (0.9)	9.8 (1.1)	54.0 (2.8)
Some Postsecondary	822	4,941,775	24.1 (4.0)	10.6 (1.7)	10.9 (2.5)	12.3 (1.2)	42.1 (3.8)
College Degree	503	3,560,209	25.7 (3.3)	14.7 (1.8)	11.7 (2.2)	17.4 (1.9)	30.6 (3.1)
AGE							
16-20	246	1,375,025	15.7 (2.6)	8.3 (3.8)	13.9 (3.5)	8.6 (2.9)	53.4 (3.9)
21-25	582	3,243,831	16.0 (3.7)	12.7 (1.6)	6.6 (1.2)	11.7 (1.3)	52.9 (4.3)
26-31	711	4,103,058	20.6 (4.9)	8.7 (1.3)	6.9 (2.0)	12.5 (1.3)	51.3 (5.1)
32-45	1,039	5,987,221	29.3 (2.0)	11.3 (1.8)	8.1 (1.3)	11.0 (1.3)	40.3 (2.1)
46 +	537	3,254,693	23.6 (4.7)	7.1 (1.4)	9.1 (2.4)	10.9 (1.9)	49.3 (3.2)
LABOR FORCE STATUS							
Employed	1,257	6,956,220	20.5 (4.2)	10.4 (1.2)	8.7 (1.8)	11.6 (0.9)	48.7 (3.3)
Not Employed	1,095	6,247,544	26.0 (2.0)	10.2 (1.0)	7.5 (1.0)	12.6 (1.5)	43.7 (2.3)
Out of Labor Force	775	4,826,262	22.6 (3.8)	8.9 (1.2)	8.2 (1.8)	8.9 (1.9)	51.4 (3.8)

Table E.12 Frequency of Writing on the Job by JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Memos, business letters

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,144	955,459	14.3 (1.0)	7.0 (0.9)	4.1 (1.0)	8.2 (0.7)	66.5 (1.9)
RACE/ETHNICITY							
White	1,358	678,662	13.8 (1.2)	7.2 (1.1)	4.6 (1.4)	8.4 (0.8)	65.9 (2.5)
Black	535	179,287	18.0 (2.9)	6.2 (1.5)	3.4 (1.0)	6.7 (1.8)	65.6 (5.2)
Hispanic	144	58,915	15.7 (3.3)	7.9 (4.2)	1.7 (1.4)	9.3 (4.0)	65.4 (5.8)
LEVEL OF EDUCATION							
0-8 Years	135	53,070	6.2 (2.9)	4.8 (2.0)	0.5 (0.4)	1.7 (1.3)	86.8 (3.3)
9-12 Years	536	235,882	10.2 (1.3)	5.7 (1.6)	2.6 (0.8)	5.0 (1.5)	76.5 (3.1)
H.S. Dip. or GED	935	432,116	14.4 (1.6)	4.7 (1.1)	4.3 (1.2)	8.7 (0.9)	67.9 (2.0)
Some Postsecondary	412	173,776	18.6 (3.0)	11.2 (2.6)	4.1 (1.6)	10.8 (1.8)	55.3 (3.2)
College Degree	125	60,458	23.8 (6.2)	18.4 (2.6)	11.7 (5.5)	15.1 (6.0)	31.0 (6.6)
AGE							
16-20	286	112,024	12.8 (3.6)	5.3 (1.4)	1.2 (0.6)	4.5 (1.7)	76.3 (4.1)
21-25	428	191,866	14.0 (3.1)	4.7 (1.5)	2.6 (0.9)	6.9 (2.1)	71.8 (4.0)
26-31	466	217,714	12.5 (2.4)	8.6 (2.2)	5.0 (1.5)	9.2 (1.6)	64.7 (3.8)
32-45	705	324,596	14.9 (2.0)	6.6 (1.7)	5.3 (2.3)	8.8 (1.4)	64.4 (2.9)
46 +	246	103,170	18.9 (2.4)	11.5 (3.0)	4.5 (1.2)	10.8 (2.4)	54.4 (4.6)
LABOR FORCE STATUS							
Employed	434	215,317	14.3 (2.7)	6.0 (1.8)	7.5 (2.9)	8.5 (1.6)	63.8 (4.8)
Not Employed	768	333,623	17.9 (1.9)	8.2 (1.6)	3.6 (1.3)	9.1 (1.5)	61.3 (2.3)
Out of Labor Force	942	406,520	11.3 (1.6)	6.6 (1.4)	2.7 (0.6)	7.3 (1.2)	72.1 (2.3)

Reports

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,137	951,561	23.6 (1.5)	6.1 (1.1)	6.8 (0.5)	8.0 (1.0)	55.5 (1.7)
RACE/ETHNICITY							
White	1,356	679,079	24.2 (1.6)	5.0 (1.4)	7.2 (0.7)	8.8 (1.2)	54.8 (2.2)
Black	530	175,048	22.3 (2.6)	10.4 (4.1)	5.6 (1.0)	5.8 (1.9)	55.9 (4.4)
Hispanic	145	59,039	27.4 (5.6)	7.1 (2.7)	6.9 (1.9)	5.0 (2.6)	53.6 (5.5)
LEVEL OF EDUCATION							
0-8 Years	134	52,868	14.0 (2.8)	1.5 (1.3)	3.3 (1.6)	5.3 (2.5)	76.0 (3.6)
9-12 Years	531	230,730	16.0 (2.4)	3.3 (1.1)	6.4 (0.8)	4.5 (1.5)	69.8 (3.2)
H.S. Dip. or GED	936	434,633	23.9 (2.1)	5.3 (1.1)	7.3 (1.1)	10.3 (1.5)	53.2 (2.1)
Some Postsecondary	410	172,713	29.5 (2.5)	10.1 (2.8)	5.7 (1.6)	6.9 (1.7)	47.9 (3.2)
College Degree	125	60,458	42.4 (4.9)	14.7 (5.7)	11.1 (2.7)	10.9 (5.4)	20.8 (4.4)
AGE							
16-20	285	111,209	11.6 (3.1)	4.4 (2.0)	4.3 (1.6)	4.2 (1.7)	75.6 (4.7)
21-25	426	187,925	20.8 (2.5)	3.6 (1.2)	5.2 (1.3)	6.5 (1.6)	63.9 (3.3)
26-31	460	212,998	22.9 (3.2)	7.0 (1.8)	7.8 (1.7)	6.3 (1.9)	55.9 (2.9)
32-45	706	328,200	26.0 (1.8)	7.0 (2.1)	6.9 (0.9)	10.2 (1.4)	50.0 (2.1)
46 +	247	105,140	34.9 (5.1)	7.6 (2.3)	9.3 (2.3)	11.5 (3.7)	36.7 (5.1)
LABOR FORCE STATUS							
Employed	434	214,965	22.9 (3.6)	7.1 (3.1)	5.3 (1.4)	7.5 (1.9)	57.2 (5.1)
Not Employed	765	331,273	28.1 (2.6)	6.3 (2.1)	7.7 (1.2)	9.9 (1.4)	47.9 (1.9)
Out of Labor Force	938	405,323	20.3 (2.0)	5.3 (1.4)	6.8 (0.9)	6.8 (1.7)	60.8 (2.3)

* The numbers in parentheses are estimated standard errors.

Table E.12 (Continued)

Frequency of Writing on the Job by JTPA Applicants by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Forms

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,141	956,090	36.8 (2.1)	7.3 (0.8)	6.6 (0.8)	8.2 (0.7)	41.1 (2.2)
RACE/ETHNICITY							
White	1,358	681,182	37.6 (2.6)	8.5 (1.1)	6.1 (0.9)	7.8 (1.1)	40.1 (2.6)
Black	533	177,660	35.9 (3.0)	4.6 (0.6)	8.6 (2.0)	9.3 (2.7)	41.6 (5.1)
Hispanic	144	58,853	43.2 (6.3)	5.6 (3.1)	6.2 (3.2)	10.4 (4.8)	34.6 (4.9)
LEVEL OF EDUCATION							
0-8 Years	134	52,868	22.6 (4.7)	5.5 (2.8)	7.8 (3.6)	2.4 (2.0)	61.7 (5.7)
9-12 Years	531	231,359	24.1 (4.4)	5.4 (1.7)	7.4 (1.6)	5.0 (1.1)	58.0 (3.7)
H.S. Dip. or GED	937	435,500	37.9 (2.2)	6.1 (1.1)	7.2 (1.1)	9.5 (1.6)	39.2 (1.9)
Some Postsecondary	413	175,747	47.7 (4.1)	12.5 (2.3)	4.1 (1.2)	9.2 (1.5)	26.5 (3.9)
College Degree	125	60,458	58.9 (5.0)	10.0 (3.3)	5.4 (2.3)	12.2 (2.1)	13.6 (2.9)
AGE							
16-20	285	111,080	24.9 (4.0)	5.1 (1.7)	7.9 (2.2)	5.9 (1.6)	56.1 (5.2)
21-25	427	189,895	36.9 (3.0)	7.4 (1.8)	8.1 (2.2)	11.0 (2.7)	36.7 (3.7)
26-31	461	213,717	35.1 (3.7)	8.2 (1.9)	5.1 (1.4)	5.4 (1.2)	46.2 (3.8)
32-45	708	330,168	40.6 (2.5)	5.9 (1.1)	7.2 (1.5)	9.2 (1.9)	37.0 (2.2)
46 +	247	105,140	43.1 (3.7)	12.6 (3.8)	4.1 (1.5)	7.4 (3.0)	32.8 (3.7)
LABOR FORCE STATUS							
Employed	433	215,805	36.5 (2.8)	10.8 (2.6)	7.2 (2.2)	5.1 (1.2)	40.4 (3.6)
Not Employed	765	330,025	41.0 (2.8)	7.2 (1.6)	5.5 (1.4)	10.0 (1.2)	36.4 (2.2)
Out of Labor Force	943	410,260	33.7 (2.8)	5.6 (0.8)	7.2 (0.8)	8.3 (1.1)	45.1 (3.1)

Bills, invoices

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	2,141	954,724	14.4 (0.8)	6.0 (0.6)	4.6 (0.7)	8.1 (1.2)	66.9 (1.6)
RACE/ETHNICITY							
White	1,356	677,285	14.4 (1.0)	6.5 (0.6)	4.2 (0.8)	7.8 (1.2)	67.1 (1.6)
Black	536	180,264	14.6 (3.4)	5.5 (1.4)	6.9 (0.9)	7.8 (2.5)	65.2 (3.8)
Hispanic	143	58,728	19.9 (5.0)	5.0 (3.7)	1.9 (1.0)	8.9 (5.0)	64.3 (7.9)
LEVEL OF EDUCATION							
0-8 Years	135	53,070	11.7 (2.6)	4.9 (2.2)	0.3 (0.3)	9.1 (5.1)	74.0 (4.8)
9-12 Years	533	232,781	9.6 (1.9)	6.9 (1.8)	5.1 (1.0)	3.2 (0.8)	75.2 (2.7)
H.S. Dip. or GED	935	434,482	16.6 (1.5)	4.5 (0.9)	4.6 (0.7)	9.2 (1.4)	65.1 (1.9)
Some Postsecondary	412	173,776	16.8 (2.8)	8.7 (3.5)	5.5 (1.5)	9.9 (2.2)	59.1 (4.8)
College Degree	125	60,458	13.2 (3.1)	6.9 (3.4)	3.7 (2.2)	13.1 (5.2)	63.0 (3.2)
AGE							
16-20	287	112,501	13.6 (3.7)	5.3 (1.9)	3.3 (1.5)	4.7 (2.0)	73.2 (5.6)
21-25	426	189,747	15.7 (2.4)	8.0 (2.1)	3.3 (1.1)	4.5 (1.3)	68.6 (4.1)
26-31	464	217,551	16.5 (2.0)	5.4 (1.7)	5.0 (1.2)	8.1 (2.9)	65.0 (2.7)
32-45	706	326,567	12.2 (1.5)	5.6 (1.3)	5.2 (1.3)	10.4 (1.9)	66.6 (1.9)
46 +	245	102,269	16.8 (2.3)	6.1 (2.0)	5.7 (2.5)	10.9 (2.9)	60.5 (3.9)
LABOR FORCE STATUS							
Employed	433	216,099	14.0 (1.8)	6.7 (2.1)	6.2 (2.2)	9.3 (2.0)	63.8 (3.2)
Not Employed	766	330,751	16.4 (2.2)	7.3 (1.1)	3.4 (1.0)	7.4 (1.3)	65.5 (2.6)
Out of Labor Force	942	407,874	13.1 (1.6)	4.6 (1.1)	4.7 (1.1)	8.1 (2.0)	69.6 (2.4)

Table E.13 Frequency of Writing on the Job by ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status*

Memos, business letters

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,137	18,033,334	25.0 (1.9)	12.5 (0.9)	7.4 (0.7)	9.6 (0.8)	45.6 (2.8)
RACE/ETHNICITY							
White	2,308	11,545,901	28.1 (1.9)	13.4 (1.1)	5.8 (0.6)	10.3 (0.8)	42.3 (2.0)
Black	350	2,038,935	15.9 (2.3)	6.8 (2.3)	10.1 (2.7)	8.1 (2.3)	59.0 (5.5)
Hispanic	366	3,548,835	19.0 (4.7)	13.8 (3.1)	10.5 (2.1)	8.2 (0.8)	48.5 (8.6)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	10.7 (8.0)	3.8 (3.1)	1.1 (1.2)	2.1 (1.5)	82.3 (7.7)
9-12 Years	460	2,584,995	14.0 (2.6)	5.6 (1.6)	6.5 (2.2)	4.4 (1.4)	69.6 (4.7)
H.S. Dip. or GED	1,231	6,429,663	20.6 (2.7)	9.3 (1.1)	7.8 (1.6)	9.7 (1.4)	52.6 (4.1)
Some Postsecondary	823	4,932,674	27.0 (3.3)	15.0 (2.2)	7.8 (1.0)	10.8 (1.5)	39.4 (4.9)
College Degree	503	3,560,209	40.4 (2.7)	21.1 (2.3)	7.3 (1.6)	12.6 (2.4)	18.6 (2.4)
AGE							
16-20	247	1,377,248	25.6 (7.1)	6.0 (2.5)	7.4 (3.5)	7.8 (3.8)	53.1(10.0)
21-25	582	3,221,355	19.9 (1.7)	13.2 (2.1)	6.6 (1.9)	5.8 (1.3)	54.5 (4.1)
26-31	714	4,113,750	20.5 (2.9)	13.5 (2.3)	7.1 (2.2)	10.0 (1.3)	48.8 (3.8)
32-45	1,043	5,989,653	30.6 (2.5)	10.4 (1.6)	8.3 (1.1)	10.4 (1.4)	40.2 (3.5)
46 +	539	3,265,128	25.3 (2.2)	16.5 (1.4)	6.9 (1.3)	12.0 (1.9)	39.3 (2.6)
LABOR FORCE STATUS							
Employed	1,262	6,951,992	22.4 (2.3)	13.5 (1.1)	6.5 (1.1)	13.9 (1.9)	43.7 (3.6)
Not Employed	1,097	6,243,154	28.4 (2.6)	12.2 (1.5)	8.2 (1.0)	6.6 (0.9)	44.6 (3.3)
Out of Labor Force	778	4,838,188	24.4 (2.8)	11.5 (2.0)	7.5 (2.5)	7.2 (1.3)	49.5 (4.2)

Reports

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,136	18,040,949	31.4 (1.4)	10.2 (0.8)	11.4 (0.6)	11.3 (1.3)	35.7 (1.7)
RACE/ETHNICITY							
White	2,307	11,543,554	34.2 (1.8)	10.3 (0.8)	10.1 (0.4)	11.9 (1.5)	33.4 (1.7)
Black	349	2,033,403	28.6 (3.3)	8.3 (2.3)	14.5 (3.2)	9.7 (2.8)	39.0 (3.8)
Hispanic	366	3,548,835	25.8 (4.1)	9.5 (1.9)	12.1 (2.2)	12.6 (3.5)	40.0 (4.9)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	16.4 (5.4)	7.2 (8.0)	4.5 (1.3)	0.6 (0.6)	71.3 (9.6)
9-12 Years	459	2,579,463	28.5 (3.5)	3.8 (0.7)	7.2 (1.7)	10.0 (2.4)	50.5 (2.8)
H.S. Dip. or GED	1,231	6,427,717	30.5 (1.6)	7.3 (0.8)	11.7 (1.3)	8.9 (1.5)	41.5 (2.9)
Some Postsecondary	822	4,944,419	34.0 (2.8)	11.0 (1.3)	10.4 (0.9)	14.2 (1.4)	30.4 (3.2)
College Degree	504	3,563,557	33.4 (1.9)	19.3 (3.3)	16.0 (1.2)	14.3 (1.9)	17.0 (3.3)
AGE							
16-20	246	1,375,025	16.2 (3.1)	8.0 (2.6)	9.8 (3.1)	9.7 (3.2)	56.4 (6.3)
21-25	582	3,221,355	30.3 (3.2)	8.3 (1.4)	8.1 (2.2)	10.1 (1.8)	43.2 (3.7)
26-31	714	4,111,566	29.8 (1.7)	10.8 (1.5)	10.1 (1.6)	11.9 (1.9)	37.4 (3.6)
32-45	1,043	6,003,622	35.9 (2.4)	11.6 (1.5)	13.4 (1.4)	12.5 (2.2)	26.7 (2.1)
46 +	539	3,263,182	32.9 (1.9)	9.0 (2.5)	13.4 (1.2)	10.3 (2.1)	34.4 (3.8)
LABOR FORCE STATUS							
Employed	1,261	6,949,769	27.8 (2.2)	10.9 (1.5)	10.5 (1.4)	13.2 (2.2)	37.5 (2.3)
Not Employed	1,098	6,259,345	33.8 (2.5)	11.1 (1.2)	12.3 (1.9)	10.6 (1.2)	32.2 (2.6)
Out of Labor Force	777	4,831,834	33.5 (1.7)	7.9 (1.3)	11.3 (1.8)	9.7 (1.9)	37.5 (3.7)

* The numbers in parentheses are estimated standard errors.

Table E.13 (continued)

Frequency of Writing on the Job by ES/UI Participants by Race/Ethnicity, Level of Education, Age, and Labor Force Status

Forms

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,132	18,026,922	47.7 (2.4)	10.7 (0.6)	8.7 (0.9)	6.6 (0.5)	26.3 (2.1)
RACE/ETHNICITY							
White	2,303	11,529,528	51.6 (2.2)	11.1 (0.8)	7.9 (0.8)	6.2 (0.7)	23.1 (2.1)
Black	349	2,033,403	43.7 (3.9)	8.9 (2.9)	6.2 (1.6)	7.8 (1.7)	33.5 (3.6)
Hispanic	366	3,548,835	39.0 (3.6)	11.5 (2.7)	10.3 (3.2)	7.4 (2.0)	31.8 (4.3)
LEVEL OF EDUCATION							
0-8 Years	117	503,275	10.2 (3.3)	1.2 (0.7)	10.0 (8.3)	4.1 (3.0)	74.5 (7.6)
9-12 Years	459	2,579,463	34.4 (2.8)	7.7 (1.5)	7.9 (2.1)	5.6 (2.6)	44.4 (2.7)
H.S. Dip. or GED	1,228	6,418,367	47.9 (3.1)	9.0 (0.6)	8.2 (1.1)	6.2 (0.8)	28.7 (3.3)
Some Postsecondary	821	4,939,742	53.2 (2.6)	10.5 (1.3)	8.1 (1.5)	7.6 (1.6)	20.6 (2.1)
College Degree	504	3,563,557	54.7 (3.5)	17.4 (3.0)	10.9 (2.0)	7.0 (1.4)	10.0 (2.5)
AGE							
16-20	246	1,375,025	43.5 (6.0)	9.1 (1.8)	9.9 (2.2)	6.2 (1.6)	31.4 (4.2)
21-25	582	3,221,355	41.3 (5.2)	9.8 (2.5)	9.0 (1.8)	5.6 (1.6)	34.3 (3.0)
26-31	714	4,111,566	47.8 (3.0)	10.1 (2.3)	7.3 (1.6)	8.1 (1.1)	26.6 (3.8)
32-45	1,041	5,996,721	53.9 (1.9)	11.7 (1.3)	8.3 (1.3)	5.5 (0.8)	20.6 (1.7)
46 +	537	3,256,055	45.3 (3.4)	10.5 (2.3)	10.6 (2.3)	7.6 (1.0)	26.0 (2.8)
LABOR FORCE STATUS							
Employed	1,260	6,944,866	47.6 (3.7)	9.9 (1.3)	9.0 (1.2)	6.6 (0.9)	26.9 (3.0)
Not Employed	1,097	6,257,122	48.2 (2.5)	11.8 (1.5)	8.7 (1.4)	6.2 (1.1)	25.1 (2.6)
Out of Labor Force	775	4,824,934	47.3 (2.4)	10.4 (1.5)	8.3 (1.5)	7.1 (1.5)	26.8 (2.7)

Bills, invoices

	n	Weighted N	Every Day	A Few Times a Week	Once a Week	Less than Once a Week	Never
TOTAL	3,130	18,011,281	21.3 (1.4)	10.4 (0.9)	7.4 (0.8)	9.4 (0.9)	51.5 (1.9)
RACE/ETHNICITY							
White	2,303	11,535,333	21.9 (1.4)	10.7 (1.2)	7.3 (0.6)	10.3 (1.1)	49.9 (1.6)
Black	348	2,027,451	14.4 (3.2)	7.8 (2.5)	7.3 (2.2)	4.8 (1.8)	65.7 (4.8)
Hispanic	366	3,548,835	23.0 (3.8)	11.5 (1.9)	7.2 (2.6)	7.1 (1.8)	51.2 (6.2)
LEVEL OF EDUCATION							
0-8 Years	116	497,322	2.6 (1.6)	3.5 (3.1)	13.6 (9.4)	4.5 (3.4)	75.8 (9.7)
9-12 Years	459	2,579,463	19.3(1.5)	7.6 (1.6)	5.0 (1.7)	5.3 (1.2)	62.9 (2.0)
H.S. Dip. or GED	1,228	6,421,047	22.3 (2.6)	8.7 (1.3)	7.0 (1.3)	6.9 (0.8)	55.1 (3.7)
Some Postsecondary	822	4,931,838	22.6 (1.7)	10.9 (1.7)	7.5 (1.1)	8.2 (1.2)	50.9 (2.3)
College Degree	502	3,559,093	21.9 (3.1)	15.2 (1.9)	8.7 (1.0)	19.6 (2.8)	34.5 (3.3)
AGE							
16-20	247	1,377,248	19.4 (4.0)	6.2 (2.1)	4.9 (2.6)	5.0 (1.7)	64.4 (4.0)
21-25	581	3,215,403	23.5 (2.2)	12.6 (2.4)	5.0 (1.5)	7.3 (2.5)	51.7 (3.9)
26-31	714	4,112,256	20.8 (2.7)	10.1 (2.5)	9.2 (2.1)	9.0 (0.9)	50.9 (3.3)
32-45	1,039	5,982,564	22.6 (2.6)	10.5 (1.4)	8.1 (1.6)	11.1 (1.4)	47.7 (2.6)
46 +	537	3,257,610	18.1 (2.7)	10.2 (1.6)	6.5 (1.2)	11.1 (2.0)	54.0 (2.5)
LABOR FORCE STATUS							
Employed	1,258	6,939,352	20.3 (2.6)	10.0 (1.7)	5.7 (0.8)	10.7 (0.9)	53.3 (2.7)
Not Employed	1,096	6,241,628	23.7 (2.1)	11.7 (1.1)	8.0 (1.5)	8.3 (1.6)	48.3 (1.9)
Out of Labor Force	776	4,830,301	19.7 (2.0)	9.2 (2.1)	8.9 (1.9)	9.1 (1.8)	53.1 (3.1)

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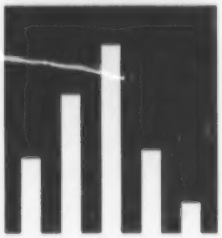

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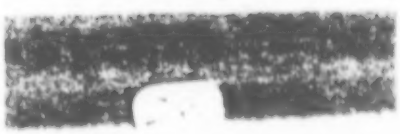

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